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BOTANY BULLETIN No. VIII.

DECEMBER, 1893.

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F. M. BAILEY, F.L.S.,

COLONIAL BOTANIST.

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NOTICE.

It was my intention to delay the publication of a part of the matter contained in the present Bulletin until I was in possession of further detail, but certain matters have occurred which make it imperative that, so far as possible, all phytologic matter at all available be issued in the present publication.

I particularly regret that this has to be done, for it was my hope that I should have been enabled to carry out the plan adopted with the Freshwater Algæ, of publishing all similar Families in separate Bulletins; and for this purpose the large number of Lichens determined for us by the eminent specialist, Professor J. Muller, have been kept back from a few of the previous Bulletins, but have now to be given.

Those descriptions, of which printed slips have been issued, and those added during the progress of the printing, are dated.

F. M. B.

30th December, 1893.



CONTENTS.

	Page.		Page.
Abill	75	Cladonia degencrans, var. pleolepis	
Acolium buelliaceum, <i>J. M.</i> ...	92	<i>Flk.</i>	93
Æcidium compositarum, <i>Mart.</i> ...	112	fimbriata, var. antilopæa, <i>J. M.</i> ...	92
Deeringiæ, <i>Cke and Mass.</i> ...	113	furcata, var. foliolosa, <i>J. M.</i> ...	93
Goodeniacearum, <i>Berk.</i> ...	112	macilenta, var. flabellulata, <i>J. M.</i> ...	93
Agaricus (<i>Lepiota</i>) membranaceus,		Clathroporina desquamans, f. sore-	
<i>Cke and Mass.</i>	107	diosa, <i>J. M.</i>	105
(<i>Collybia</i>) dryophilus, <i>Bull.</i> ...	107	olivacea, <i>J. M.</i>	105
" muscipula, <i>C. and M.</i> ...	107	Calonectria otagensis, <i>Lind.</i> ...	111
" nummularis, <i>Fries.</i> ...	107	Coccocarpia aurantiaca, <i>Mont. et V. d.</i>	
(<i>Mycena</i>) epipterygius, <i>Fries.</i> ...	107	<i>Bosch.</i>	97
(<i>Pleurotus</i>) cyphellæformis, <i>Berk.</i> ...	107	pellita, var. incisa, <i>J. M.</i> ...	97
Alectoria australiensis, <i>C. Knight</i> ...	93	" " smaragdina, <i>J. M.</i> ...	97
Anaptychia comosa, <i>Trev.</i>	96	Cænogonium confervoides, <i>Nyl.</i> ...	101
leucomelæna, <i>Trev.</i>	96	Coleocoma centaurea, <i>F. v. M.</i> ...	78
speciosa, var. hypoleuca, f. sore-		Conyza elata, <i>Bail.</i>	78
diifera, <i>J. M.</i>	96	Crowea scabra	71
speciosa, var. sorediosa, <i>J. M.</i> ...	96	Crow's ash	111
Anthracotheicum confuue, <i>J. M.</i> ...	106	Cryptandra amara	72
Doleschalii, <i>Mass.</i>	106	pyramidalis	72
Archidium brisbanicum, <i>Broth.</i> ...	87	spinescens, <i>Sieb.</i>	72
Aristolochia prævenosa, <i>F. v. M.</i> ...	84	Cupania flagelliformis, <i>Bail.</i> ...	73
Arthopyrenia Cinchonæ, <i>J. M.</i> ...	105	Cyathus Baileyi, <i>Mass.</i>	109
Arthothelium puniceum, <i>J. M.</i> ...	104	Cyperus platystylis, <i>R. Br.</i> ...	85
Arrhenia (<i>Apus</i>) cupularis, <i>Fries.</i> ...	108	Cyphella longipes, <i>Cke. and Mass.</i> ...	109
Asclepias curassavica	113	Cyrto-Hypnum nano-delicatulum ...	89
Ascobolus Phillipsii, <i>B.</i>	111		
Aspergillus simplex	114	Darluka filum, <i>Cast.</i>	114
Asplenium flaccidum, <i>Forst.</i> ...	86	Darwinia fascicularis, <i>Rudge.</i> ...	77
odontites	87	Deeringia celosioides	113
Aster cyanodiscus	77	Dendroceros crispatus, <i>Hook</i> ...	90
Asterina hoveaefolia, <i>C. and M.</i> ...	113	Muelleri, <i>Stephani</i>	91
		Desvauxia aristata	85
Banksia ericifolia, <i>Linn. f.</i>	82	Diplodia Marsdeniæ, <i>Cke. and Mass.</i> ...	113
Becch (European)	112	Diploschistes actinostomus, <i>Zahl.</i> ...	99
Botrytis glauca	114	Dodonæa attenuata	73
Bryum (<i>Eubryum</i>) immarginatum,		lobulata, <i>F. v. M.</i>	73
<i>Broth.</i>	88	ptarmicifolia	73
(<i>Eubryum</i>) Tryoni, <i>Broth.</i> ...	88	oxyptera, <i>F. v. M.</i>	74
Buellia lactea, <i>Karb.</i>	100	viscosa	73
rimulosa, <i>J. M.</i>	101		
subarenaria, <i>J. M.</i>	100	Emmenospermum Alphonioioides ...	72
subareolata, <i>J. M.</i>	100	Cunninghamii, <i>Berk.</i>	72
		Endiandra Sankeyana, <i>Bail.</i> ...	82
Calicium trachelinum, <i>Ach.</i>	91	Erioderma Knightii, <i>Shirley</i> ...	96
Victoria, var. jejunum, <i>F. R. M.</i>		Eriostemon lanceolatus	71
<i>Wilson.</i>	92	salieifolius, <i>Sm.</i>	71
Callicarpa lanata	81	Erycibe paniculata, var. coccinea,	
longifolia	81	<i>Bail.</i>	80
Callophisma cinnabarinum, var. opa-		Eurybia ramosissima	77
cum, <i>J. M.</i>	98		
conjungens, <i>J. M.</i>	98	Fagus	112
Carex chlorantha, <i>R. Br.</i>	85	Fagus Carronii	84
Carpinus	112	Cunninghamii	84
Cartonema spicatum, <i>R. Br.</i> ...	84	Moorei, <i>F. v. M.</i>	84
Centrolepis aristata, <i>Racm. et Schult.</i> ...	85	Flindersia australis	111
Chiodecton (<i>Enterographa</i>) endoleu-		Fissidens (<i>Conomitrium</i>) splach-	
cum, <i>J. M.</i>	104	noides, <i>Broth.</i>	87
sphærale, <i>Ach.</i>	104	Fomes cryptarum, <i>Bull.</i>	109
Choretium glomeratum, <i>R. Br.</i> ...	83		

	Page.		Page.
Geaster Archeri, Berk. ...	110	Nangbro ...	80
Glecosporium Alphonitice, C. and M. ...	114	Nectria otagensis ...	111
Goodenia heterochila, F. v. M. ...	79	Negro Head of N.S.W. ...	84
Goolaway ...	82		
Gomphandra ...	71	Ocellularia endomelæna, J. M. ...	101
<i>Australiana</i> ...	72	leucotylia, Nyl. ...	101
polymorpha, Wight., var. 6 ...	72	phlyctioides, J. M. ...	101
Graphis Baileyana, J. M. ...	103	Olearia cyanodiscalis ...	77
emersa, J. M. ...	103	ramosissima, Benth. ...	77
(Aulacographa) duplicata, Ach. ...	103	Opographa Bonplandii, var. abbreviata, J. M. ...	102
duplicata, var. sublevis, J. M. ...	103	(Lecanactis) platygraphoides, J. M. ...	102
(Fissurina) insidiosa, J. M. ...	103	varia, var. diaphora, Nyl. ...	102
(Eugraphis) Lineola, Ach. ...	103	vulgaris, var. subsiderella, Nyl. ...	102
Graphina pyelodes, Wilson ...	103		
Gyalectidium filicinum, J. M. ...	99	Pán, or Betel-leaf ...	81
phyllocharis, J. M. ...	99	Pannaria mariana, f. isidiosa, J. M. ...	96
		Panicum cenicolum, F. v. M. ...	86
<i>Halothamnus microphyllus</i> ...	71	Parathelium decumbens, J. M. ...	105
Hamaspora longissima, Korn. ...	112	Parmelia adpressa, Krcmp. ...	95
Heterothecium fusco-luteum, J. M. ...	101	cetrata, var. sorediifera, Wainio. ...	94
vulpinum, Tuck. ...	101	Hookeri, Tayl. ...	95
Hookeria (Eulhookeria) Karsteniana, Broth. ...	89	limbata, Laux. ...	95
Hornbeam ...	112	meizospora, Nyl. ...	95
Hypoxylon atrophæricum, Cke. and Mass. ...	112	perlata, var. ciliata, D. C. ...	95
scopiforme ...	111	physodes, var. pulverata, J. M. ...	95
		prætersiva, J. M. ...	95
Indigofera saxicola, F. v. M. ...	74	rutidota, f. sorediosa, J. M. ...	95
Ipomœa Muelleri, Benth. ...	80	tenuirima, Tayl. ...	95
		tillacea, var. rugulata, J. M. ...	95
Kochia planifolia, F. v. M. ...	82	var. sulphurea, Tuck. ...	95
villosa ...	82	Parmentaria astroidea, Fée. ...	105
		Patellaria alboflavicans, J. M. ...	100
Lecanora atra, var. virens, J. M. ...	98	intermixta, J. M. ...	100
interjecta, J. M. ...	98	melacina, Nyl. ...	100
Lecanora lacteola, J. M. ...	97	millegrana, J. M. ...	100
subfusca, var. cinereo-carnea, Tuck. ...	98	" var. fusco nigrescens, J. M. ...	100
subfusca, var. distans, Nyl. ...	97	Peltigera polydactyla, var. dissecta, J. M. ...	93
" " testaceo-pallida, subimmersa, J. M. ...	97	Penicillium crustaceum ...	114
Lecidea albo-cœrulescens, Wulf. ...	99	expansum ...	114
impressa, Krcmp. ...	99	glaucum, Link. ...	114
piperis, var. melanocarpa J. M. ...	100	Peroa microphylla ...	79
Leptogium tremelloides, var. isidiosa, J. M. ...	91	Peroja microphylla ...	79
Leptotrema compactum, Nyl. ...	102	Pertusaria commutata, J. M. ...	98
Leucoloma clavinerve, C. M. ...	87	(Depressæ) depressa, var. octomera, J. M. ...	98
Leucopogon denudatus ...	79	(Depressæ) undulata, J. M. ...	99
fraternus ...	79	(Pustulatæ) lactea, Nyl. ...	98
microphyllus, R. Br. ...	79	globulifera, Nyl. ...	98
Lime-tree of Europe ...	112	sulphurata, J. M. ...	98
Lycoperdon Gunnii, Berk. ...	110	Phagmidium longissimum ...	112
		Phæotrema cricatum, J. M. ...	102
Maraguigi ...	73	Phoma folliculorum, Lév. ...	113
Marasmius badius, B. and C. ...	108	Phyllosticta fragaricola, Desm. ...	113
pilopus, Kalc. ...	107	Physarum didermoides, Ach. ...	110
putredinis, Berk. ...	108	Physcia stellaris, var. acrita, Nyl. ...	96
rhysosphyllus, Mont. ...	108	Piper Betle ...	81
Marsdenia ...	113	Mestoni ...	81
Melasmia tecomatis, C. and M. ...	114	Pithecolobium Lovellæ, Bail. ...	74
Melilotus alba, Lann. ...	74	Tozerii ...	75
Micrococcus crepusculum, Ehrenb. ...	114	Plagianthus microphyllus, F. v. M. ...	71
Monoclea crispata ...	90	Polyblastia nudata, J. M. ...	105
Mucor crustaceus ...	114	Polyporus (Ovini) mylittæ, Cke. and Mass. ...	108
Myliitta australis ...	108	(Ovini) tumulosus ...	108
Myrtus exaltata, Bail. ...	77	(Petaloides) grammocephalus, var. minor, Cooke. ...	109
		infernalis, B. ...	109
		phlebochophorus, B. ...	109

	Page.		Page.
<i>Porina phaeophthalma</i> , Shirley ...	105	<i>Sticta impressa</i> , Hook. and Tayl. ...	94
<i>Prunus</i>	75	<i>physciospora</i> , Nyl. ...	94
<i>Psora parvifolia</i> , var. subgranu-		<i>Seemanni</i> , Bab. ...	94
<i>losa</i> , J. M.	97	<i>variabilis</i> , var. <i>papyracea</i> , J. M. ...	94
<i>Pterobryum</i> (<i>Trachyloma</i>) recurvu-		<i>Strawberry-leaf blight</i> ...	113
<i>lum</i> , C. M.	89	<i>Strigula elegans</i> , var. <i>eumorpha</i> , J. M. ...	104
<i>Puccinia carissæ</i> , C. and M. ...	110	" <i>pertenuis</i> , J. M. ...	104
<i>Pygeum Turnerianum</i> , Bail. ...	75	<i>Styphelia denudata</i>	79
<i>Pyrenula bicuspidata</i> , J. M. ...	106	<i>microphylla</i>	79
<i>Kunthii</i> , Fée.	106		
<i>marginata</i> , Fries.	106	<i>Thalloidina cœruleo-nigricans</i> , J. M. ...	97
<i>nitida</i> , Ach.	106	<i>Thelotrema cupulare</i> , J. M. ...	102
<i>punguis</i> , Fée.	106	<i>inturgescens</i> , J. M. ...	102
<i>Pyrgillus javanicus</i> , Nyl. ...	92	<i>Thuidium nano-delicatulum</i> , Hampe ...	89
<i>Pyxine endochrysa</i> , Nyl. ...	96	<i>pernula</i>	89
<i>Meissneri</i> , var. <i>endoleuca</i> , J. M. ...	96	<i>Tilia</i>	112
" <i>f. sorediosa</i> , J. M. ...	96	<i>Tobacco-pipe fungus</i>	109
		<i>Tremotylium nitidulum</i> , J. M. ...	103
<i>Ramalina Ecklonii</i> , var. <i>tenuissima</i> ,		<i>Tylophoron trilocular</i> , J. M. ...	92
<i>Mey. et Flot.</i>	93		
<i>inflata</i> , var. <i>olivacea</i> , J. M. ...	93	<i>Uredo pallidula</i> , C. and M. ...	111
<i>Rosellinia seriata</i> , Cke. and Mass. ...	112	<i>Uromyces puccinioides</i> , B. and Muell. ...	112
<i>Rottboellia rariflora</i> , Bail. ...	86	<i>Usnea barbata</i> , var. <i>asperima</i> , J. M. ...	93
<i>Rubus rigidus</i>	112	<i>Ustulina vulgaris</i> , Fries. ...	111
<i>Sarcographa actinota</i> , Wilson ...	104	<i>Velleia connata</i> , F. v. M. ...	78
<i>Solanum Macoorai</i> , Bail. ...	80	<i>Vermicularia</i> , sp. ? ...	113
<i>Sphacelotheca hydropiperis</i> , Schum. ...	110	<i>Vincetoxicum pachylepis</i> , Bail. ...	79
<i>Sphaeropsis folliculorum</i>	113	<i>Vinegar Plant</i>	114
<i>Stictina brevipes</i> , J. M. ...	94		
<i>crocata</i> , var. <i>esorediata</i> , J. M. ...	94	<i>Weinmannia apetal</i> a, Bail. ..	76
<i>Freyinetii</i> , var. <i>isidiosula</i> , J. M. ...	94	<i>lactnocarpa</i>	76
<i>fuliginosa</i> , Nyl.	94	<i>White Melilot</i>	74
<i>quercizans</i> , Ach.	94		
<i>suborbicularis</i> , J. M.	94	<i>Xylaria rhizophila</i> , C. and M. ..	111
<i>Sticta Bornetii</i> , J. M. ...	94	<i>scopiformis</i> , Kunze. ..	111
<i>endochrysea</i> , var. <i>flavicans</i> , J. M. ...	94		
" " <i>Urvillei</i> , J. M. ...	94		



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BOTANY:

CONTRIBUTIONS TO QUEENSLAND FLORA.

Order MALVACEÆ.

PLAGIANTHUS, Forst.

F. microphyllus, *F. v. M.*, Fragm. i. 29.; Fl. Austr. i. 190; *Halothamnus microphyllus*, *F. v. M.*, Pl. Vict. i. 159. A dwarf rigid shrub, clothed with scurfy scales, very tortuous and branchy, the smaller branches slender and often spinescent. Leaves from linear to oblong-cuneate, rarely exceeding $\frac{1}{2}$ -in. and usually much smaller, obtuse or 3-toothed at the end, more or less tapering at the base. Flowers small, sessile or nearly so, 1 to 3 together in the axils, not spicate. Calyx when in flower not above $1\frac{1}{2}$ line long. Carpel usually single, enclosed in the calyx and membranous.—Fl. Austr. l.c.

Hab.: Queensland, *F. v. M.**

* When these initials are thus given, I am indebted to Baron Mueller for the information of its having been received by him from Queensland, but he has not given me the locality.

Order RUTACEÆ.

ERIOSTEMON, Sm.

E. salicifolius, *Sm.*, Fl. Austr. i. 331; *E. lanceolatus*, Gærtn. f. Fr. iii. 154 t. 210; *Crowea scabra*, Grah. in Edinb. Phil. Journ. 1827, 174. An erect shrub, the branches rigid and often angular, glabrous or minutely hoary. Leaves linear or linear-lanceolate, mostly 1 to 2 in. long, rather thick and rigid, glabrous when full-grown, obscurely 1-nerved. Peduncle axillary, short and 1-flowered, with a few broad scale-like imbricate bracts at the base, hoary, with a minute tomentum, as well as the calyx and petals. Sepals short, orbicular, rigid. Petals pink, attaining about $\frac{1}{2}$ inch. Filaments flattened, densely fringed with woolly hairs, clavate and glandular at the top, bearing the anthers on a short stipes as in *Boronia*; anthers tipped with a very short, broad recurved appendage. Ovary glabrous; style slightly pubescent below the middle. Cocci truncate at the top, but not beaked, transversely wrinkled. Seeds smooth and shining.—Fl. Austr. l.c.

Hab.: Queensland, *F. v. M.*

Order OLACINEÆ.

TRIBE ICACINEÆ.

GOMPHANDRA, Wall.

Calyx minute, cup-shaped, 4 or 5-lobed. Corolla campanulate, 4 or 5-lobed; lobes acuminate, inflexed, rarely free, midrib prominent within. Stamens 5, hypogynous, alternate with the petals, filaments thick, dilated above, hairy at the back (in most species), hollowed in

front to receive the anthers. Anthers pendulous from the filiform apex of the filament, 2-lobed, dehiscing lengthwise; pollen-grains triangular. Hypogynous disk thick, annular or none. Ovary sterile in the male, oblong in the female flower, 1-celled; style conic, stigma minute or style crowned by a stigmatiferous disk; ovules 2, collateral, pendulous, funicle dilated into an "obturator." Fruit drupaceous, surmounted by the remains of the disk (stigma?), stone crustaceous. Seed pendulous, surrounded by the raphe, albumen fleshy bipartite; embryo minute. Tree with alternate leaves, simple 1-nerved and petiolated. Flowers in axillary, terminal or leaf-opposed cymes; dichlamydeous, hermaphrodite or polygamo-diceious.—*Hook.*, Fl. British India i. 585.

(This genus is briefly noticed in the Syn. Ql. Fl. p. 65, but it has been thought advisable to give a fuller description here, as a second species has been met with in Queensland.)

G. polymorpha, *Wight.* **var. 6.** A handsome tree of about 60 ft. in height, the inflorescence and young shoots puberulent, otherwise glabrous. Leaves alternate 3 to 5 in. long, ovate-lanceolate, with a more or less elongated blunt apex and cuneate base, petioles about 4 or 5 lines long, dark-green on the upper, pale on the under surface; the primary veins distant, only 3 or 4 on each side of the midrib, reticulate veinlets obscure, margins entire. Flowers in short axillary, dichotomous cymes. Calyx very short and cup-shaped, with almost entire edge. Corolla-tube about 2 lines long with minute teeth, the tips inflexed, from which proceeds down the inside of the corolla-tube a prominent rib. Stamens glabrous, 5, at length exerted and widely spreading, but incurved again near the anthers. Ovary glabrous, 4-angled, stigma sessile. Fruit not as yet been gathered. I cannot separate this plant from the East Indian species, of which several (5) varieties are named and described in *Hook.*, Fl. of Brit. India i. 586. From the fragmentary specimens which I have of *G. australiana*, F. v. M., the present plant seems to differ considerably both in foliage and inflorescence.

Hab.: Scrubs of the Barron River, *E. Cowley*.

September, 1893.

Order RHAMNEÆ.

EMMENOSPERMUM, F. v. M.

E. Cunninghamii, *Benth.*, Fl. Austr. i. 415. Leaves alternate, similar to those of *E. alphonitioides*, except that the petioles are longer. Flowers not seen. Umbel-like symes, apparently not numerous, in a terminal corymbose panicle. Fruit rather larger than *E. alphonitioides*, 3 or 4-celled; epicarp scarcely any; cocci 2-valved. Seeds red and shining as in that species, but not persistent on the torns, and the funicle very small.—Fl. Austr. l.c.

Hab.: Queensland, *F. v. M.*

CRYPTANDRA, Sm.

C. spinescens, *Sieb.*, Fl. Austr. i. 439; *C. pyramidalis*, R. Br., in Ann. Sc. Nat. x. 373. Nearly allied to *C. amara*, and with nearly the same foliage; but the branches are usually more twiggy, and the spinous branchlets more densely crowded. Leaves usually linear or linear-oblong, 2 or rarely 3 lines long, but occasionally small and

obovate. Flowers smaller than in *C. amara*, and more distinctly, although very shortly, pedicellate. Calyx $1\frac{1}{2}$ to 2 lines long, narrow-companulate, the adnate base glabrous and suddenly contracted into a little stipes about the length of the imbricate, brown bracts, the free part white-tomentose outside. Ovary almost entirely inferior, the pubescent summit slightly prominent above the adnate part, and obscurely grooved opposite the stamens, but without any distinct disk. Capsule oblong, $1\frac{1}{2}$ to 2 lines long, almost included in the glabrous, elongated, adnate base of the calyx-tube, shortly free in the upper part. Cocci thinly crustaceous.—Fl. Austr. l.c.

Hab.: Queensland, *F. v. M.*

Order SAPINDACEÆ.

SUB-ORDER SAPINDEÆ.

CUPANIA, Linn.

C. flagelliformis (n. sp.) (So named from the thong-like branches of panicle.) Aboriginal name at the Barron River, "Maraguigi." A shrub or small tree, the branches angular, dark-coloured except in a young state, when, like the young foliage, they are clothed by a ferruginous or grey tomentum. Leaves, the petiole and rhachis together, measuring from 1 ft. to 16 in. in length, the leaflets scattered, 13 or more, size very irregular, some attaining 6 in. in length, and a width of $1\frac{3}{4}$ in., the point often much elongated, the base shortly cuneate to a petiolule of about $\frac{1}{2}$ in., margins dentate with large teeth, the primary nerves prominent and parallel, with strongly-marked reticulations between, all more or less hairy on the under side, upper surface of leaflet glabrous, and the reticulations not prominent. Panicles velvety, near the ends of the branches, of few (3 to 5) slender thong-like branches, some of which being about 2 ft. in length; flowers in distant sessile clusters, expanded flower about 4 lines in diameter. Sepals orbicular, much imbricate, silky on the back, irregular as to size. Petals buff-coloured, broad cuneate, undulately lobed at the top, much shorter than the sepals, and bearing at the base of each 2 incurved, hairy, scale-like appendages, much shorter than the petal. Stamens 8, included, filaments hairy, anthers slightly longer than the filaments, oblong, angular, hairy between the blunt angles. Ovary hairy, but probably abortive in the flowers examined. Capsules not as yet obtained.

Hab.: Scrub about the Barron River, *E. Cowley*.

September, 1893.

SUB-ORDER DODONEÆ.

DODONÆA, Linn.

SERIES CYCLOPTERÆ.

D. lobulata, *F. v. M.*, in *Linnæa* xxv. 372; Fl. Austr. i. 479. Closely allied on the one hand to *D. attenuata*, and on the other to *D. pтарmitifolia*, glabrous and viscid, the branchlets scarcely angular. Leaves linear or linear-cuneate, obtuse, mostly 1 to 2 in. long; obtusely serrate or pinnatifid, with short, obtuse, callous lobes, coriaceous and rigid, the midrib scarcely conspicuous. Flowers few, in short racemes, the pedicels rather slender. Sepals thin, broadly ovate. Capsule of the smaller forms of *D. viscosa*, the wings not very broad. Seeds smooth and shining.—Fl. Austr. l.c.

Hab.: Queensland, *F. v. M.*

SERIES PINNATÆ.

D. oxyptera, *F. v. M.*, *Fragm.* i. 74; *Fl. Austr.* i. 484. A shrub of several feet, the branches virgate, terete, pubescent, as well as the leaves, and more or less viscid. Leaves pinnate, the rhachis angular, but scarcely dilated; leaflets usually 5 to 11, narrow-oblong or oblong-cuneate, obtuse, 2 to 4 lines or rarely $\frac{1}{2}$ in. long, the margins recurved. Flowers small, sessile, or very shortly pedicellate. Sepals broad, acute, about 1 line long. Anthers obtuse, not exceeding the calyx, often hirsute. Capsule small, slightly hairy, the axis 2 or three lines long, the wings rigid, divergent, almost triangular, and acute.—*Fl. Austr.* l.c.

Hab.: Islands of the Gulf of Carpentaria, *Flora Australiensis*.

Order LEGUMINOSÆ.

TRIBE TRIFOLIEÆ.

MELILOTUS, Tournef.

M. alba, *Lam.* The common white Melilot. An erect, wiry-stemmed plant of 2, 3, or more ft. high. Stipules linear acuminate. Leaves pinnately 3-foliate; leaflets narrow, sharply toothed. Racemes slender, attaining the length of 5 or 6 in. Flowers small white. Calyx-teeth lanceolate, shorter than the tube. Corolla 2 or 3 times the length of the calyx. Pod 1 to $1\frac{1}{2}$ lines, obtuse, and marked with transverse wrinkles.

Hab.: A weed on the cultivation paddocks about Pittsworth. This plant is recorded as a troublesome weed in the fields and vineyards of Southern Europe.

TRIBE GALEGEÆ.

INDIGOFERA, Linn.

I. saxicola, *F. v. M.*, *Fl. Austr.* ii. 199. A shrub of 3 or 4 ft., with spreading branches, slightly hoary, with a minute pubescence. Leaflets 5 or rarely 7, obovate or orbicular, and very obtuse, mostly about 1 in. long, on petiolules of 1 to 2 lines, the pinnate veins scarcely prominent. Racemes pedunculate, rather slender, longer than the leaves. Calyx-teeth shorter than the tube, the upper ones broad and distant. Standard sessile, 3 lines long or rather more; keel acute. Pod terete, spreading, $\frac{1}{2}$ to $\frac{3}{4}$ in. long, straight.—*Fl. Austr.* l. c.

Hab.: Queensland, *F. v. M.*

TRIBE INGEÆ.

PITHECOLOBIUM, Mart.

P. Lovellæ (n. sp.) A small tree, 20 to 30 ft. high, with a brown smooth bark, the young shoots and inflorescence clothed with dense glossy light-brown hairs, becoming of lighter colour on the older parts. Leaves velvety pubescent, usually with 3 pairs of pinnæ. The common petiole short in the leaves examined, about $1\frac{1}{2}$ in. in length, with a sessile gland near the base; rhachis about $3\frac{1}{2}$ in. long, bearing a sessile gland between the two upper pairs of pinnæ; rhachis of pinnæ from 1 to $2\frac{1}{2}$ in. long, the uppermost pairs of pinnæ and leaflets much the largest. Leaflets 2 pairs each on the lowest and 4 on the terminal pinnæ, nearly sessile, ovate to nearly oblong, from under 1 in. to $2\frac{1}{2}$ in. long, upper surface sparingly hairy, the under surface densely tomentose, margins revolute. Panicle terminal, rather short (judging from the specimen to hand); the sessile flowers in irregular head-like

clusters. Bracts ovate to linear-lanceolate, minute, very hairy. Calyx campanulate, thick, coriaceous, the outside densely clothed with glossy, somewhat bronzed-coloured hairs, inside glabrous and purplish or dark coloured, about 5 lines long, teeth 5, blunt. Corolla-tube exceeding the calyx by 2 or 3 lines, then expanding and funnel-shaped, and deeply divided into 5 linear lobes, clothed on the outside with pale yellowish velvety hairs, the tube and lobes glabrous on the inner surface. Stamens filiform and very numerous, the tubular portion nearly as long as the corolla-tube, and of a deep crimson, free portions exerted beyond the corolla about 1 in. shading from light to deep crimson. Anthers light coloured, minute; style filiform, longer than the stamens.

Hab.: Fraser's Island, *Hon. Miss Lovell*.

This additional *Pithecolobium* in many respects resembles *P. Tozerii*, but differs from that species in the form of glands and foliage, as well also as in the indumentum.

May 1st, 1893.

Order ROSACEÆ.

TRIBE PRUNÆ.

PYGEUM, Gærtn.

Calyx-tube obconic, urceolate, or campanulate, deciduous; limb 5 to 15-toothed, often unequally. Petals minute, 5 to 6 in the 5 to 6-toothed calyx, none in the 10 to 15-toothed, villous or tomentose, rarely glabrous, often undistinguishable from the calyx lobes. Stamens 10 to 50, in one or more series at the orifice of the calyx-tube, filaments slender, incurved; anthers small. Carpel 1, basal in the calyx-tube, ovoid or subglobose; style terminal, slender, exerted from the bud; stigma capitate; ovules 2, collateral, pendulous. Fruit a transversely oblong, obscurely didymous, rarely subglobose drupe, pericarp thin, dry, or juicy. Cotyledons very thick, hemispheric; radicle minute, superior. Evergreen trees or shrubs. Leaves alternate, persistent, usually quite entire; stipules minute, fugacious, basal glands 2 or none. Flowers small, racemose, sometimes unisexual by want of ovary.—*Hook.*, Fl. Brit. Ind., ii. 318.

Differs from *Prunus* chiefly in the minute villous petals (when present) and form of the fruit. The often conspicuous basal pair of glands on the leaf are very variable, a few species have scattered glands, and one has bullate glands on the tip of the petiole, formed by a prolongation of the leaf-blade.—*Hook. l.c.*

The genus contained previously about twenty species all of Tropical Asia, except one Tropical African species.

P. Turnerianum (n. sp.) (After F. Turner, Botanist to Agricultural Department of New South Wales, who has done so much to bring before the public of that colony the economic value of Australian fodder plants.) Aboriginal name, "Abill." Mr. Cowley says that this name applies to both tree and fruit. A small tree, with small flanges at the base of trunk. The leafy part of the branches densely clothed with ferruginous hairs. Leaves, upper surface bright glossy green, the under surface pale, entire, lanceolate or oblong-lanceolate, 4 to 6½ in. long, 1½ to 2½ in. broad, primary veins rather distant, very oblique, and looping near the margin, prominent on the underside; upper surface rather glossy, with short appressed hairs along the midrib, and sometimes on other parts of the surface;

the underside more or less hairy, with rather rigid appressed hair of a somewhat yellowish tinge, tapering to a slender petiole of 3 to 5 lines; basal glands irregular as to position, and number 1, 2, or 3, sometimes a marginal one on each side of the midrib below the lowest pair of lateral nerves, sometimes above on the one side and below on the other, or with a gland below the second pair of nerves, oval, dark coloured. Racemes numerous, lateral, 1 or 2 in. long, slender, and softly ferruginous tomentose flowers, male, nearly sessile, calyx-tube widely campanulate, about 2 lines diameter, glabrous, and probably purplish inside, except for a tuft of ferruginous hairs in place of ovary; lobes about 12, narrow, very hairy, the hairs longer at the apex, nearly as long as the tube. Stamens between 30 and 40, filaments coloured, glabrous, a little longer or about as long as the lobes of calyx. Anthers oblong. Female flowers wanting. Drupe of a rich plum colour, transversely slightly exceeding 1 in. in diameter.

Fruit stones of a *Pygeum* were picked up in the scrubs of tropical Queensland by Mr. Christie Palmerston, and others near Mount Sophia by Mr. A. Meston. The former are blunt-cordate, much compressed, about 1 in. long and nearly as broad, and about $\frac{1}{2}$ in. thick. Putamen of a light brown colour, somewhat smooth like the shell of a hard-shelled almond, marked with prominent, arching, branched veins or ribs, and reticulate between. Those found by Mr. A. Meston at Mount Sophia are more spherical, but broader than long, 11 lines broad and 9 lines long, the reticulation more prominent and closer than in *C. Palmerston's* examples. From the fruit now to hand from Mr. E. Cowley there can be no doubt but what all belong to one species.

Hab.: For shoot, bearing male flowers, and later branches with ripe fruit, Barron River, *E. Cowley*. Stones of fruit, *Christie Palmerston* and *A. Meston*.

May 1st, 1893.

Order SAXIFRAGÆ.

TRIBE CUNONIEÆ.

WEINMANNIA, Linn.

W. apetala (n. sp.) A tall tree, glabrous except the inflorescence. Leaves opposite, digitately compound, leaflets 3, sessile, lanceolate and bluntly or glandularly serrate, 2 or 3 in. long, the petiole usually under 2 in. long, texture membranaceous. Inflorescence hoary-pubescent, racemose, at the nodes below the leaves of the branchlets. Some of the smaller branchlets are destitute of leaves and then change the inflorescence to a peduncle bearing at its end an umbel of three racemes, the common peduncle 6 to 8 lines, the secondary peduncles about 6 to 8 lines, bearing racemes of from $1\frac{1}{2}$ to 3 in. long; flowers numerous, scattered. Bracts narrow-lanceolate, petiolate, about as long as the pedicels. Pedicels very slender about 2 or 3 lines long. Flowers when expanded 2 lines diameter; calyx-lobes 5. Petals none. Stamens 12 or more, much exerted, the filaments of unequal length, and often somewhat flattened; anthers some much larger than the others, didymous. Styles 2 free; spreading, glabrous. Ovary hirsute except at the very base. Fruit as yet unknown. Flowering in December and January.

The present species approaches near to *W. lachnocarpa* F. v. M., but differs in its more lax slender inflorescence, more membranous leaves, which are not so prominently reticulate; its longer stamens, as well as probably the flower lobes to the calyx.

Hab.: Kamerunga, *E. Cowley*.

September, 1893.

Order MYRTACEÆ.

TRIBE CHAMÆLANCIEÆ.

DARWINIA, Rudge.

D. fascicularis, *Rudge*, Trans. Linn. Soc. xi. 299 t. 22; Fl. Austr. iii. 13. An erect much-branched heath-like shrub. Leaves scattered, often crowded, linear, slender, semiterete or obscurely triquetrous, subulate-pointed, mostly 4 to 5 lines long, shortly petiolate, the floral ones not different or slightly longer. Flowers about 6 to 12 together in terminal heads within the last leaves. Bracteoles narrow and short. Calyx slender, not 3 lines long, the adnate part prominently 5-ribbed, otherwise smooth. Lobes very small and scale-like. Petals broad, about $\frac{1}{2}$ -line long. Staminodia short and filiform. Style long and slender.—Fl. Austr. l.c.

Hab.: Queensland, *F. v. M.*

TRIBE MYRTEÆ.

MYRTUS, Linn.

M. exaltata (n. sp.) (So named from its lofty growth.) A tree of from 80 to 100 ft. in height, furnishing a good timber. Bark on the branchlets loose, brownish. Leaves glossy, irregularly opposite or alternate, ovate with often long tail-like points, 2 to 3 in. long $1\frac{1}{2}$ inch. broad, on rather slender petioles of about 3 lines, the primary veins very slender, numerous, parallel, oblique, joining in an intramarginal one more or less distant from the edge, the intermediate veinlets few and distant. Oil-dots minute. (No flowers seen.) Fruit in short, stout racemes in the upper axils, globular, about 5 lines diameter, of a pink colour and fleshy consistence, containing, so far as could be observed (the fruit being in bad condition), but a solitary seed.

Hab.: Scrubs about the Barron River, the fruit used for jam-making, *E. Cowley*.

September, 1893.

Order COMPOSITÆ.

TRIBE ASTEROIDEÆ.

OLEARIA, Mœnch.

O. ramosissima, *Benth.*, Fl. Austr. iii. 479. (*Eurybia ramosissima*, DC.; *Aster cyanodiscus*, *F. v. M.*; or *Olearia cyanodiscalis*, *F. v. M.*, *Fragm. v. 82.*) A shrub of 2 or 3 ft., with numerous rather slender branches, scabrous-pubescent, mixed with a little loose wool. Leaves minute, reflexed, clustered in the axils, lanceolate or linear, entire, with revolute margins, all under 1 line long or rarely the larger ones narrow and nearly 2 lines long, glabrous and smooth or scabrous above, with a thin loose wool underneath. Flower-heads solitary at the ends of the branchlets, forming an oblong or rarely corymbose leafy panicle. Involucre broadly turbinate, about 3 lines long, the bracts often coloured and jagged at the edge. Florets blue, those of the rays 12 to 15, more numerous in the disk and longer than the involucre. Achenes more or less villous. Pappus white, with a few short outer bristles.—Fl. Austr. l.c.

Hab.: Queensland, *F. v. M.*

CONYZA, Linn.

C. elata (n. sp.). A tall rambling shrub, often attaining the height of 9 or more ft. Stems prominently striate. Leaves alternate, lanceolate, sharply toothed and acuminate, 3 to 5 in. long, the petioles short and slender, the primary veins few and distant, the young growth and inflorescence hoary tomentose, otherwise nearly glabrous. Flower-heads in small corymbs, terminating the lateral branches, clustered or on elongated peduncles. Involucral bracts narrow linear, in 2 or 3 series, the inner ones about 3 lines long, the outer ones broader and only 1 or 2 lines long. Receptacle densely hairy. Outer florets female, with very slender tubes, the lobes setaceous, the long exserted style-branches very narrow and glabrous; the disk or central florets few, male (or hermaphrodite) florets with much wider tubes enclosing the anthers, corolla-lobes as in the males, bearing prominent white bristles; style-branches flattened and echinate, but not so far exserted, but much broader than those of the female florets. Pappus slightly exceeding the involucre, 1-seriate, white. Achenes silky, and flattened, angular, or more or less ribbed.

Hab.: Abounding in the scrubs of the Russell River, and attaining the height of 12 or 14 ft., *Bellenden-Ker Expedition*; Barron River Scrubs, *E. Cowley*.

TRIBE INULOIDES.

COLEOCOMA, F. v. M.

Involucre ovoid, the bracts imbricate in several rows, dry, with slightly scarios tips. Receptacle flat, without scales. Florets all tubular, those of the circumference slender, female, 3- to 5-toothed; disk-florets several, hermaphrodite, sterile, 5-toothed. Anthers tailed. Style of the disk-florets usually undivided. Achenes striate, somewhat compressed, those of the disk abortive. Pappus of linear rigid scale-like bristles, those of the female florets united in a long tube, jagged at the end, those of the disk-florets free almost to the base. Low, rigid herb. Leaves alternate, usually toothed. Flower-heads terminal or lateral.—*Benth.* in *Fl. Austr.* iii. 533.

C. centaurea, *F. v. M.*, *Fl. Austr.* iii. 533. A low, rigid, erect, branching herb, almost woody at the base, glabrous except for a little woolliness at base of involucre. Leaves linear or lanceolate, acute, with a few acute teeth, contracted at the base, but the upper ones sessile or slightly decurrent. Flower-heads terminal and sessile within the last leaves or at the base of the lateral branches. Involucre 4 or 5 lines long, the bracts very broad, the inner ones with short broad scarios tips, jagged almost as in *Centaurea*. Florets yellow. Achenes rather long, but much shorter than the involucre, the tips of the pappus of the sterile florets slightly protruding.—*Benth. l.c.*

Hab.: St. George, *Jos. Wedd.*
November, 1893.

Order GOODENOVIÆ.

VELLEIA, Sm.

V. connata, *F. v. M.*, *Fl. Austr.* iv. 46. Glabrous and glaucous. Radical leaves petiolate, obovate-oblong and toothed or oblong-spathulate and entire, 2 to 3 in. long. Stems tall, dichotomous, with large, broad, connate entire or toothed bracts at the forks. Sepals 5, ovate or ovate-lanceolate, acuminate, the outer one fully 4 lines long, the others smaller, usually connate at the base. Corolla 7 to 8 lines

long, the lower lobes not winged (or the wings destroyed in the specimens seen?), the upper ones winged on one side and slightly ciliate. Capsule about 3 lines diameter. Seeds about 1 line diameter, including the wing.—Fl. Austr. l.c.

Hab.: Queensland, *F. v. M.*

GOODENIA, Sm.

G. heterochila, *F. v. M.*, Fragm. iii. 142.; Fl. Austr. iv. 71. Herbaceous, softly pubescent or villous. Leaves oval-oblong or lanceolate, entire or toothed, 1 to 2 in. long, contracted at the base, the lower ones not seen. Peduncles 1-flowered, axillary, slender, shorter than the leaves, articulate under the flower. Bracteoles none or very minute. Calyx-lobes linear or setaceous. Corolla under $\frac{1}{2}$ in. long, the 3 lower lobes winged and truncate, the 2 upper winged, but with an auricle on the outer side below the middle. Dissepiment of the ovary very short; ovules 4 or 5, large and flat.—Fl. Austr. l.c.

Hab.: I have at times received fragments from the Gulf country, which may probably belong to one or other of the forms of this species.

Order EPACRIDÆ.

TRIBE STYPHELIEÆ.

LEUCOPOGON, R. Br.

L. microphyllus, *R. Br.*, Fl. Austr. iv. 192. (*Perojoa microphylla*, lav. Ic. iv. 29. t. 349. *Peroa microphylla*, Pers. *Styphelia microphylla*, Spreng. *Leucopogon denudatus*, Sieb. *Styphelia denudata*, Spreng. *Leucopogon fraternus*, DC.) An erect or straggling shrub, with rather slender, often twiggy, branches, more or less pubescent. Leaves ovate-oblong, lanceolate or almost linear, obtuse, flat, erect or recurved, 1 to 2 lines long, or sometimes all under 1 line, very rarely a few exceeding 2 lines. Spikes terminal, very short, dense, and few-flowered, clustered so as to form little leafy heads at the ends of the branches. Lower bracts leaf-like, acuminate; bracteoles half as long as the calyx. Sepals about 1 line long, narrow, acuminate and acute or rarely almost obtuse. Corolla under $1\frac{1}{2}$ lines long, the lobes as long as the tube. Anthers attached below the short sterile tips. Hypogynous disk truncate or shortly lobed. Ovary 2-celled, tapering into the style. Fruit small, oblong, usually 1-seeded.—Fl. Austr. l.c.

Hab.: Queensland, *F. v. M.*

Order ASCLEPIADEÆ.

TRIBE CYNANCHEÆ.

VINCETOXICUM, Moench.

V. pachylepis (n. sp.) A stout ferruginous climber. Leaves rotund-ovate, apiculate, the base prominently cordate, 3 to 5 in. long, $2\frac{1}{2}$ to 4 in. broad; petioles slender, 1 to $1\frac{1}{2}$ in. long, clothed as well as the principal veins with short brown hairs, the lamina nearly or quite glabrous on both sides. Flowers cream-coloured, fragrant, in pubescent, axillary umbels; peduncle about 1 in. long, the pedicels not exceeding 3 lines. Calyx-segments much overlapping, very broad, nearly orbicular, $2\frac{1}{2}$ lines long, glabrous inside, margins ciliate. Corolla 4 or 5 lines long, contorted in the bud, the lobes twice as long as the tube, thick, and more or less hairy on the inside. Corona composed of 5 free, oblong apiculate, glossy, thick scales, about $1\frac{1}{2}$

lines long; anthers somewhat shorter, but the terminal membrane held in the little point of the corona scale at its back. Pollen masses oblong, glossy. Stigma minutely 2-lobed. Fruit not seen.

Hab.: Kamerunga, E. Cowley.

Order CONVOLVULACEÆ.

TRIBE CONVOLVULÆ.

ERYCIBE, Roxb.

E. paniculata, Roxb. Flora Austr. iv. 411.; **var. coccinea**, Bail. Native name, "Nangbro." Benth. l.c. says berry in the Indian specimens ovoid, above $\frac{1}{2}$ in. long, not seen in the Australian ones. De Candolle Prod. ix. 464. The berry is said to be black, the size of a small cherry. In Brandis's Florist Flora, p. 344, the berry is also said to be black. The colour of berry is very seldom recorded in the descriptions given of the species or varieties of this genus; but in all cases where the berries of *P. paniculata* are spoken of they are said to be black, thus differing from the Australian plant, in which they are, when fresh, described as of a pleasing cardinal red colour; and they were quite red when they reached my hands. In form oval, about $\frac{1}{2}$ to nearly $\frac{3}{4}$ in. long; rather fleshy, containing a single seed.

Hab.: I am indebted to Miss Cowley, of Kamerunga, for the ripe fruit of the above plant, which she says is of a pleasing cardinal red in February. The above name is recommended to distinguish the Australian from any of the Indian forms.

IPOMÆA, Linn.

SERIES SPECIOSÆ.

J. Muelleri, Benth., Fl. Austr. iv. 423. A glabrous, rather slender twiner. Leaves on rather long petioles, very broadly cordate-ovate, obtuse, with rounded basal auricles, entire, 1 to 2 in. long. Peduncles shorter or at length longer than the petioles, bearing 1 to 3 flowers on very short pedicels. Bracts very small. Sepals broad, obtuse, or scarcely acuminate, 4 to 5 lines long. Corolla apparently pink, rather above 1 in. long. Capsule globular, smooth, as long as the calyx. Seeds villous, nearly allied to *I. sepiaria*, but the flowers are smaller and the seeds villous.—Fl. Austr. l.c.

Hab.: Queensland, F. v. M.

Order SOLANACEÆ.

SOLANUM, Linn.

S. macoorai (n. sp.) Aboriginal name for South Peak of Bellenden Ker Range. A shrub of straggling habit, attaining from 5 to 7 feet in height, the young shoots purplish, appearing glabrous, but with the aid of a lens seen to be more or less covered with minute stellate hairs. Prickles straw-coloured, straight, on the branches, petioles, midrib, and principal veins on both sides of leaf. Leaves ovate, acuminate, unequal sided at the base and tapering to a petiole of about 2 in.; the margins repandly lobed. No flowers seen. Fruit solitary, on a peduncle of about 1 in., globular, yellow, about $\frac{3}{4}$ -in. diameter. Calyx-tube (as seen at base of fruit) with 5 blunt prominent ribs, lobes 2 or 3 lines long with recurved points.

Hab.: Summit of south peak Bellenden-Ker, June, 1889. From the seeds I brought to Brisbane plants were raised at Bowen Park. These grew luxuriantly,

but have all died before producing flowers. The above fragmentary description has been kept back from publication in the hope that flowers would have been obtained from the plants in cultivation. These having been lost, an account is now given of the plant with the hope that some person visiting the locality may collect and forward to the writer a few shoots bearing flowers, or fresh fruits for cultivation.

Order VERBENACEÆ.

TRIBE VITICEÆ.

CALLICARPA, Linn.

C. longifolia, Linn. From Dr. T. G. White, of Geraldton, I hear that the Javanese living in the Johnstone-River district make use of the bark of this shrub as a substitute for the Betel-leaf, when chewing the areca-nut with lime. The species has a wide range, being met with in many parts of India and the Malay Peninsula, besides Australia, and therefore it may be put to the above purpose in Java. Dr. Dymock gives the following quotation, when referring to *C. lanata*, Linn.:—"Ainslie says that the bark has a peculiar sub-aromatic and slightly bitter taste, and is chewed by the Cingalese when they cannot obtain Betel-leaves." From the above it is probable that the bark of any species of the genus obtainable is used.

It is strange that the Javanese do not make use of the leaves of one or other of our indigenous Pipers, which, in form of leaf and habit of growth, rather closely resemble the Betel-leaf plant—*Piper Betle*. (P. Mestoni, of the Russell River, belongs to the same tribe of the genus.) Dr. Dymock, in his excellent work "The Vegetable Materia Medica of Western India," gives the following concise notice, extracted verbatim from "Dutt's Hindu Materia Medica":—"The leaves of this creeper are, as is well known, masticated by the natives of India. The poorer classes make their packets of betel with the addition of lime, catechu, and betel-nuts." The rich add cardamoms, nutmegs, cloves, camphor, and other aromatics. Betel-leaf thus chewed acts as a gentle stimulant and exhilarant. Those accustomed to its use feel a sense of languor when deprived of it. The ancient Hindu writers recommend that betel-leaf should be taken early in the morning, after meals, and at bedtime." According to Susruta, it is aromatic, carminative, stimulant, and astringent. It sweetens the breath, improves the voice, and removes all foulness from the mouth. According to other writers, it acts as an aphrodisiac. Medicinally, it is said to be useful in diseases supposed to be caused by deranged phlegm, and its juice is much used as an adjunct to pills administered in these diseases, the pills being rubbed into an emulsion with the juice of the betel-leaf and licked up. Being always at hand, betel-leaves are used as a domestic remedy in various ways. The stalk of the leaf, smeared with oil, is introduced into the rectum in constipation and tympanitis of children, with the object of inducing the bowels to act. The leaves are applied to the temples in headache for relieving pain; to painful and swollen glands for promoting absorption, and to the mammary gland with the object of checking the secretion of milk. Betel-leaves, known in India by the name Pan, are used as a ready dressing for foul ulcers, which seem to improve under them. In the Concan, the fruit with honey has a reputation as a remedy for cough. Sir James Emerson Tennent says in his account of the island of Ceylon, I., Page 113:—"Every Singhalese carries in his waistcloth an ornamented box of silver or brass, according

to his means, enclosing a smaller one to hold a portion of chunam (lime obtained by the calcination of shells), whilst the larger contains the nuts of the *Areca* and a few fresh leaves of the betel-pepper. As inclination or habit impels, he scrapes down the nut, which abounds in catechu, and, rolling it up with a little of the lime in a betel-leaf, the whole is chewed and finally swallowed, after provoking an extreme salivation. No medical prescription could be more judiciously compounded to effect the desired object than this practical combination of antacid, the tonic, and carminative."

Order CHENOPODIACEÆ.

TRIBE CHENOLEEÆ.

KOCHIA, Schrad.

K. planifolia, *F. v. M.*, *Fragm.* i. 213; *Fl. Austr.* v. 187. An erect divaricately branched shrub of 2 or 3 ft., the branches and young foliage covered with a soft and dense woolly tomentum, which wears off from the older leaves. Leaves oblong or oblanceolate, obtuse, contracted into a distinct petiole, $\frac{1}{4}$ to $\frac{1}{2}$ in. long, rather thick but flat. Fruiting perianth precisely that of *K. villosa*, glabrous or tomentose, the wing generally entire, membranous and attaining 5 to 6 lines diameter.—*Fl. Austr.* l. c.

Hab.: Queensland, *F. v. M.*

Order LAURINEÆ.

TRIBE PERSEACEÆ.

ENDIANDRA, R. Br.

E. Sankeyana (n. sp.) Aboriginal name at Barron River, "Goolaway." A tree attaining the height of about 70 ft.; the young branches often 4-angular and more or less densely ferruginous velvety-tomentose. Leaves alternate or subopposite at the ends of the branchlets, from elliptical oblong to lanceolate, the larger ones 5 in. long and $2\frac{1}{2}$ in. broad in the widest part, shortly petiolate, the upper surface glabrous, the primary veins sunk, under surface pale, with the primary and reticulate veins very prominent, of a reddish-brown, and more or less velvety. Flowers not seen. Fruit racemes lateral or axillary, erect near the ends of the branchlets, rather slender, about $2\frac{1}{2}$ in. long, with one or two fruit at the end. Fruit black, globose, often compressed, 1 to $1\frac{1}{2}$ in. diameter, resting upon a star-like perianth, not exceeding 2 lines diameter.

Hab.: Scrubs about the Barron River, *E. Cowley*.

NOTE.—Following my plan of attaching to new native plants from time to time the names of those members of our Royal Society who have evinced an interest in the botany of the colony, to the present new *Endiandra* is given that of J. R. Sankey, the treasurer of the society and an active member of the Field Naturalist Section. September, 1893.

Order PROTEACEÆ.

BANKSIA, Linn. f.

B. ericifolia, *Linn. f.*, *Suppl.* 127; *Fl. Austr.* v. 547. A tall shrub or small tree of 12 to 14 ft.; glabrous except the inflorescence. Leaves crowded, narrow-linear, truncate or notched at the end, and sometimes with an intermediate point, otherwise entire with

closely revolute margins, rarely exceeding $\frac{1}{2}$ in. Spikes cylindrical, 6 to 10 in. long. Bracts with broad shortly acuminate silky-pubescent tips. Perianth yellow, silky, the tube about $\frac{3}{4}$ in. long, the limb ovoid. Style about 1 in. long, hooked, with a very short, thick, stigmatic end. Fruiting cones long and cylindrical. Capsules scarcely protruding, villous but often becoming glabrous, the flat-top $\frac{3}{4}$ to 1 in. broad and 4 or 5 lines thick.—Fl. Austr. l.c.

Hab.: Queensland, *F. v. M.*

Order SANTALACEÆ.

CHORETRUM, R. Br.

C. glomeratum, *R. Br.*, Fl. Austr. vi. 218. An erect shrub, sometimes scarcely 1 ft. high, sometimes almost arborescent, with numerous erect, slender, wiry, angular branches. Leaves reduced to minute, subulate, deciduous scales. Flowers small, in clusters of from 2 to 5 on very short common peduncles not exceeding 1 line, each cluster surrounded by 3 or 4 minute almost orbicular bracts. Perianth about $\frac{3}{4}$ line long, the broadly turbinate adnate tube not above half the length of the lobes, the external margin very slightly prominent. Drupe when dry 2 to 4 lines long, globular or slightly ovoid.—*Benth.*, l.c.

Hab.: Near Dalby, *Dr. Thos. L. Bancroft*. The specimens submitted to me were in early bud and flower.

Order CUPULIFERÆ.

Flowers monœcious. Males in spikes or catkins. Perianth of 1 or several usually unequal scales, segments or lobes. Stamens 1 or more, with or without a central rudimentary pistil; filaments slender; anthers 2-celled. Female flowers solitary or few together, surrounded by scales or bracts either remaining free or more frequently united in an entire or lobed involucre often enclosing the fruits, and sometimes growing out into setæ or prickles. Perianth-tube adnate to the ovary, the limb usually 6-toothed. Ovary inferior, 1-celled or more or less perfectly 3 or more celled. Styles as many as cells, simple, stigmatic in the upper portion. Ovules 1 or 2 in each cell, erect or pendulous. Fruit consisting of one or more nuts placed upon, or more or less enclosed in, the usually enlarged persistent involucre. Seeds usually solitary in each nut, without albumen. Embryo various, the radicle usually superior. Trees or shrubs. Leaves alternate, penniveined, with or without stipules. Male catkins usually falling off entire.—*Benth.*, in Fl. Austr. vi. 209.

FAGUS, Linn.

(So called from *Phago* to eat; because the nuts were used as food in the early ages.)

Male flowers in globular pendulous catkins within small scales, falling off very early, or rarely solitary. Perianths shortly stalked within each catkin-scale, campanulate, 4 to 6-lobed, containing 8 to 16 stamens, with protruding filaments. Female catkins globular, almost sessile, the scales linear, with numerous closely-packed filiform inner scales, all empty except the innermost and forming an involucre round 2 to 4 sessile flowers in the centre of the catkin. Perianth-limb of

4 or 5 short lobes. Ovary 3-celled, with 2 pendulous ovules in each cell. Styles 3. Nuts 2 to 4, angled or winged, enclosed in a hard prickly involucre, composed of the combined scales of the catkin, and opening in 4 valves. Trees or rarely shrubs. Leaves alternate, coriaceous, penniveined, frequently plicate and toothed. Stipules usually deciduous. Male catkins usually in the lower axils, the females in the upper ones.—*Benth.*, Fl. Austr. l.c.

F. Moorei, *F. v. M.*, Fragm. v. 109; Fl. Austr. vi. 211. (*F. Carronii*, C. Moore, Negro Head of N.S. Wales.) (After C. Moore, Director of Sydney Botanic Garden.) A tree attaining the height of 150 ft. Leaves 1 to 2 in. long on the barren shoots, $\frac{3}{4}$ to 1 in. on the flowering branches, ovate or ovate-lanceolate, crenate, acute or a few only of the lowest obtuse, flat and coriaceous as in *F. Cunninghamii*, but with more numerous and rather more prominent primary veins. Male catkins in the lower axils on short recurved peduncles. Involucre irregularly 8 to 12-lobed, and mostly splitting. Stamens about 20. Female catkins in the upper axils on erect short peduncles, ovoid, glandular, containing 3 flowers each. Ovary of the 2 outer flowers 3-angled and 3-winged, of the inner flower flattened and 2-winged. Fruiting involucre about 5 lines long.—*Benth.*, Fl. Austr. in part; *Moore's* Fl. of N.S. Wales in part.

Hab.: Baron Mueller writes me that he has received specimens of this tree, which were gathered by Mr. R. Collins on high mountains towards Tamrookam. Found in New South Wales, at the head of Bellinger River, and head of Macleay River.

Order ARISTOLOCHIACEÆ.

ARISTOLOCHIA, Linn.

A. prævenosa, *F. v. M.*, Fragm. ii. 166; Fl. Austr. vi. 208. A tall climber, the young branches and principal veins of the underside of the leaves ferruginous-pubescent or nearly glabrous. Leaves petiolate, from ovate-oblong and 3 to 4 in. long, to narrow-oblong and 8 to 10 in., obtuse or obtusely acuminate, rounded or slightly cordate at the base, coriaceous, shining above, penniveined and more or less distinctly 3 or 5-nerved, with numerous prominent transverse and reticulate veinlets underneath. Flowers unknown. Fruit of a rich yellow colour, somewhat succulent, oblong somewhat narrowed towards the base, and the apex with a short point, fully $1\frac{1}{2}$ in. long, and 10 lines in diameter, with 6 prominent ribs. Seeds compressed, triangular, the upper angles rounded, resembling in shape the pods of the Shepherd's purse, the sides slightly tubercular-rugose.

Hab.: Macpherson Range, *J. F. Shirley*; Nerang Creek, *H. Schneider*. Specimens from both localities in fruit only. First met with at the Clarence River, New South Wales.

Order COMMELYNACEÆ.

TRIBE TRADESCANTIEÆ.

CARTONEMA, R. Br.

C. spicatum, *R. Br.*, Fl. Austr. vii. 91. Stems branching at the base, usually hairy, 6 in. high below the spike. Leaves linear, tapering from a base of $1\frac{1}{2}$ to 3 lines broad just above the sheath to a long point, the longer ones usually exceeding the spike. Spike 1 to 3, sometimes very compact and only 2 in. long, rarely elongated to 6 in.,

and rather loose. Bracts linear-subulate, shorter than the perianth. Outer perianth segments subulate-acuminate, 5 to 6 lines long, very hairy; inner segments obovate, nearly as long, often but not always spotted. Filaments slightly flattened, at first shorter, but at length rather longer than the oblong-linear anthers, which open in terminal pores, rarely splitting down the sides of the cells. Ovary and capsule glabrous.—*Benth., l.c.*

Hab.: Thursday Island, *E. Cowley*. Not previously met with in Queensland, but has been found in several localities of North Australia.

Order CENTROLEPIDÆ.

CENTROLEPIS, Labill.

C. aristata, *Ræm. et Schult.*, Fl. Austr. vii. 206. (*Desvauxia aristata*, R. Br.) Leaves linear, sometimes very short and fine, but often a few of them nearly $\frac{1}{2}$ line broad and above 1 in. long. Scapes 1 to 2 in. high, or in luxuriant specimens twice that height, flattened under the spike. Floral bracts close together, glabrous, ovate erect, 2 to near 3 lines long, with long leafy points, that of the lower bract often $\frac{1}{2}$ in. and sometimes 1 in. long, the other one shorter. Flowers in each bract from 6 to about 20, intermixed with hyaline scales, some very narrow and entire, others broader and jagged at the end, always 1 under each stamen, and 1 under or by the side of each ovary, with a few apparently additional ones. Carpels of the ovary few, varying from 3 or 4 to 6 or 7.—Fl. Austr. l.c.

Hab.: Queensland, *F. v. M.*

Order CYPERACEÆ.

CYPERUS, Linn.

C. platystylis, *R. Br.*, Fl. Austr. vii. 264. Stems tufted, rather stout, not above 1 ft. high. Leaves rather broad, shorter and mostly much shorter than the stem, with flattened acutely-keeled sheaths. Umbel very compact, of about 6 rays, the longest under 1 in. Spikelets 6 to 12 in the clusters. Involucral bracts, 1 or 2 longer than the inflorescence, and one or two short. Spikelets brown, flat, but rather thick, 4 to 6 lines long, $1\frac{1}{2}$ lines broad, acute, the rachis not winged. Glumes very regularly distichous and imbricate, broadly concave, the lower ones obtuse, the upper ones acute, the keel slightly prominent, sometimes produced into a short point, the nerves very faint. Style 2 or 3-cleft, flattened or triquetrous in the upper part, the angles ciliate. Nut oblong or oval-oblong, as long as the glume, the flat face next the rachis, the back convex. The style is quite that of *Fimbristylis*, all the other characters those of *Cyperus*.—Fl. Austr. l.c.

Hab.: Queensland, *F. v. M.*

CAREX, Linn.

C. chlorantha, *R. Br.*, Fl. Austr. vii. 440. Stems usually under 6 in., but sometimes above 1 ft. high. Leaves much shorter. Spikelets 6 to 12, sessile in a dense terminal spike of $\frac{1}{2}$ to 1 in., or rarely rather longer and interrupted at the base, and then slightly compound with more numerous spikelets, the spikelets all or mostly androgynous, ovoid-oblong, 2 to 3 lines long, usually brown. Outer bracts glume-

like, or rarely the lowest with a subulate lamina nearly as long as the inflorescence. Glumes ovate, 1 to $1\frac{1}{4}$ lines long, acute or mucronate, the keel usually green. Male flowers few at the top of the spikelet. Utricle as long as the glume, much flattened, the edges ciliate, tapering into a short 2-toothed beak. Style-branches 2. Nut flat.—Fl. Austr. l.c.

Hab.: Queensland, *F. v. M.*

Order GRAMINEÆ.

TRIBE PANICEÆ.

PANICUM, Linn.

P. cœnicolum, *F. v. M.*, Austr. vii. 467. Stems from a knotty branching base ascending to 1 ft. or more. Leaves flat, usually softly pubescent or villous. Panicle of rather numerous slender simple branches, 3 to 4 in. long, at first erect, at length spreading, the lower ones verticillate, the upper ones alternate and distant or rarely in pairs. Spikelets in pairs, 1 sessile, the other pedicellate, oblong, $1\frac{1}{2}$ to 2 lines long. Outer glume not exceeding $\frac{1}{2}$ line, the 2nd rather shorter than the spikelet, 5 or 7-nerved: the 3rd 7 to 11-nerved, both more or less silky-hairy and empty. Fruiting glume smooth, acute.—Fl. Austr. l.c.

Hab.: Queensland, *F. v. M.*

TRIBE ANDROPOGONEÆ.

ROTTBOELLIA, Linn. f.

R. rariflora (n. sp.) A decumbent pubescent grass, probably annual, shortly creeping and rooting at the base, the stems slender intricate and leafy throughout their whole length. Leaves with loose sheaths, the lamina from $\frac{3}{4}$ to $1\frac{1}{2}$ in. long, narrow-lanceolate; ligula very short and jagged, hidden by the long hairs on the face of the lamina near the base. Peduncles solitary or two or more together in the axils, articulate near the middle, and there bearing a rather long obtuse close sheathing bract, peduncle terminated by a subulate bract about 2 lines long, green, 3-nerved, with nerve-like margins, half enclosing a spikelet of usually a single flower. Outer glume about 1 or $1\frac{1}{2}$ line long, nearly white, smooth and hard, faintly 3-nerved; 2nd glume hyaline and faintly 1-nerved, the 3rd and 4th glume or palea hyaline. Stamens 3. Grain enclosed in the hyaline glume and palea, but free from them. The above name is given provisionally.

Hab.: Batavia River, *Hugh Millman*. Cape York Peninsula, *Geo. Jacobson*.

Order FILICES.

ASPLENIUM, Linn.

A. flaccidum, *Forst.*, Fl. Austr. vii. 749. Rhizome stout, erect, crowned with large, subulate-lanceolate membranous scales. Stipes stout, rather short, compressed or somewhat 3-angular. Fronds under 1 ft. to 2 ft., or, in New Zealand, twice that length; pinnate or bipinnate, with winged rachis; polymorphous, coriaceous, pendulous, glabrous, and from a deep to a pale-green colour; lanceolate, acuminate in outline, pinnæ narrow, 3 to 6 or more in. long, the barren ones toothed, the fertile divided into linear lobes of 2 to 6 lines, each

bearing a single, rather large, sorus attached to the central vein ; but the conspicuous indusium thrown over to the upper side so as to appear marginal.

Hab.: Spring Creek, Killarney, *M. E. Milward*. This fern is also met with in New South Wales, Victoria, Tasmania, and New Zealand. Dr. Robt. Brown named *A. odontites*.

Order MUSCI.

ARCHIDIUM, Bridel.

A. brisbanicum, *Broth.*, in Bail. Contrib. Queensl. Fl. Bull. n. 7, p. 23 (name only). Monœcious, gregarious, small, green ; stems very short, erect, destitute of stolons ; lower leaves minute, remote, rather reflexed ; foliage leaves much larger, crowded, erecto-patent, from the base lanceolate-subulate, shortly aristate by the longer vein, margins erect, above denticulate, vein at the base about .05 mm. wide, produced into a short, denticulate awn ; cells loosely parenchymatous, rhomboid, wholly pellucid, dilutely chlorophyllose ; perichæatial bracts similar to the leaves, but longer, exceeded by the much longer vein ; thecæ globose minute, soft, thinly clothed ; spores .1-.12 mm., brown, papillose. Perigonia in the branches, very short, basilar, terminal with lanceolate bracts sparingly denticulate and veinless, antheridia few, without paraphyses.

Hab.: Ipswich road, near Brisbane, *H. Tryon*.

LEUCOLOMA, Bridel.

L. clavinerve, *C. Mull.*, in Lett. Second Suppl. Qd. Fl. p. 68 (name only). Dioecious, caespitose in dense tufts, glaucous green, not at all shining ; stems procumbent, very densely branched stems erect, straight, short, terete, acute, very densely foliaged, usually divided above, branchlets fastigiate, very short, erect ; leaves when dry-closely imbricate, when moist erect, canaliculato-concave, from the base oblong acuminate, terminated by the projecting club-shaped vein, the terminal point of the apex hyaline, margins erect, apex incurved, entire, limbate, border hyaline, very narrow, composed of elongated very narrow cellules, but obsolete at the base and apex, vein hyaline, at the base about .05 mm. wide, very smooth, green, protracted into a club-shaped deciduous appendix, with hyaline tip, basilar cells very smooth, sparingly chlorophyllose, elongated and narrowly rectangular, the lower ones golden, with quadrate cellules in the margins ; in the blade of the leaf there are many series of quadrate, hyaline cellules, the superior ones of which are verrucose, pellucid, minute, quadrate, incrassate, and chlorophyllose. The other parts are unknown.

Hab.: Petrie's Quarries, Brisbane, *H. Tryon*.

FISSIDENS, Bridel.

F. (Conomitrium) splachnoides, *Broth.*, in Bail. Contrib. Queensl. Fl. Bull. n. 13, p. 21 (name only). Dioecious, caespitose with densish tufts, lowly, fragile, pale-green, somewhat polished ; stems very short, scarcely more than 3 mm. high, rather thick, beneath red, above pale, in the lower parts of the base radiculose, with long radicles, brownish-red, above sparingly foliaged, simple ; leaves 3-4-jugate, alternate, very flaccid, for the plant large, oblong, shortly acuminate,

with oblique apex, 1.4-1.5 x .4-.5 mm., entire everywhere limbate, border very narrow, whitish, lamina nerveless, with large splanchnoids, lax, oval-hexagonal cellules, .01-.05 x .02-.025 mm., the basal cellules larger, sparingly chlorophyllose, very smooth; perichætia terminal, with few very small bracts. Other parts unknown. Male plants similar to the female, and growing in the same tuft; perigonia terminal, with few, very small bracts, widely vaginate, acuminate, and numerous antheridia.

Hab.: Indooroopilly, Queensland, *Field Naturalists*.

BRYUM, Linn.

B. (Eubryum) Tryoni, *Broth.*, in Bail. Bot. Bull. No. 7, p. 24 (name only). Dioecious, caespitose, in laxish tufts, lowly, deep green, shining; stems to 4 mm. high, erect, very densely radiculose, above densely foliaged, varying little, erect, straight, very short, crowded together; stem and foliage when dry appressed, when moist erecto-patent, carinato-concave, not at all decurrent, oblong-lanceolate, cuspidate by the shortly exerted vein, margins revolute, above denticulate, bordered, border narrow, indistinct, vein viridi-rufescent, shortly exerted, denticulate, with oblong-hexagonal cellules in the centre of the leaf, .05-.075 x .015 mm., basilar cellules subquadrate, purple; perichætial bracts smaller than the leaves, lanceolate, including numerous archegonia and short paraphyses; setæ to 2 cm. high, base geniculate-ascendant, apex arcuate, thin, red, scarcely shining, when dry not at all twisted; thecæ pendulous, of short cells (.75 mm.), when dry rugulose-subcylindrical, with neck about 3 mm. long and .75 mm. wide, not at all constricted beneath the mouth, at length purple, not shining; annulus wide, double, in part seceding; peristome duplex; exostome whether moist or dry with teeth connivent, about .475 mm. by .075 mm., very dense and trabeculate above, pallid, with hyaline apex and border, everywhere minutely papillose; endostome perfectly free, hyaline, very densely papillose with carinate processes, strongly perforate, slightly shorter than the teeth, cilia 2, lengthily appendiculate; spores .008-.01 mm., ochraceous, very smooth; operculum tall, convex, with very distinct apex, obtuse. The male plant is unknown.

Hab.: West End, South Brisbane, *II. Tryon*.

B. (Eubryum) immarginatum, *Broth.*, in Bail. Cont. Queensl. Fl. Bull. n. 13, p. 21 (name only). Dioecious, caespitose, in dense lowly tufts, fragile, green. Stems scarcely 2-3 mm. high, red, with long brown radicles, densely foliaged, rarely becoming 3-5 mm. high, erect, red, loosely, from base to apex subcomose-foliose; leaves when dry a little contorted, when moist erecto-patent, concave, not at all decurrent, oblong or oblong-oval, shortly aristate by the exerted vein, 1.3-1.5 x .57 mm., entire, not at all limbate, the margin more or less revolute, apex erect, vein thick, rufescent, ending in a short awn, rigid, slightly reflexed, very acute, of lax cells, with fine cell coat, oval-hexagonal in the centre of the leaf, .03-.045 x .017-.02 mm., the basilar ones subrectangular, purple; perichætial bracts lanceolate with entire margins, revolute, the vein considerably exerted; setæ to 15 mm. in length, flexuose, thin, red, apex pale; thecæ horizontal, subcylindrical, thin-walled, with short neck 4 mm. long and .75 mm. thick, symmetrical, large-mouthed, pallid, not at all shining; annulus broad, in part seceding; the peristome resembles that of *B. capillare*;

spores .01-.012 mm., lutescent-greenish, very smooth; operculum hemispherical, lengthily apiculate, pallid. The male plant is unknown.

Hab.: Mount Perry, Queensland, *James Keys*.

HOOKERIA, Sm.

H. (Euhookeria) Karsteniana, *Broth. Geh.* Synœcious, creeping, flaccid, complanate, pale-green, densely branched, with decumbent branches, the leaves about 2 mm. wide, obtuse; leaves delicate, hyaline, lateral, when humid, patent, asymmetrical, widely oblong, rather obtuse, terminating in a very short apex, limbate, the border very narrow, hyaline, produced to the summit of the apex, with margins erect, above minutely denticulate, with two veins, pallid, slender, and diverging from the base, abrupt beneath the apex, very smooth; cellules everywhere lax, hyaline, above shortly hexagonal .05-.06 x .04-.045 mm., the basilar ones longer, all very smooth; perichæatial bracts ovate-lanceolate, very acuminate, apex denticulate, nerveless; setæ to 1.5 cm., erect, purple, very fine and smooth; thecæ minute, oval, horizontal, atropurpureous; peristome normal; spores .01-.012 mm., obscurely green, very smooth. Other parts unknown.

Hab.: Bellenden-Ker Range, *Karsten*.

PTEROBRYUM, Hornsch.

P. (Trachyloma) recurvulum *C. Mull.*, *Bail. Syn. Queensl. Fl.* 3rd Supp., p. 98 (name only). Dioecious (?), caespitose, deep green, shining; stems creeping, branches 7-13 cm. long, flexuose, more or less densely pinnate, apex usually simple and recurved, sparingly complanate, turgid, obtuse, with short branchlets, 1-1.5 cm. long, outspread, straitish, somewhat complanate, turgid, obtuse; leaves densely crowded, prettily embossed, when moist outspread, cymbiform-concave, from the base cordate, with circinate, auricles undulate, the stems amplexant, ovate-ligulate, abruptly and shortly acuminate, the margins everywhere erect, very minutely serrulate, the vein very slender, green, scarcely produced beyond the middle of the leaf, somewhat bifurcate, cellules narrow, at both ends acuminate, replete with chlorophyll, scarcely distinct in the wings, the basilar and deeper ones more lax, in all parts smooth.

Hab.: Bellenden-Ker, *Expedition 1889*.

Of this Dr. V. F. Brotherus says "This pretty species resembles, in habit and structure of leaves, species of the genus *Calyptothecium* much more than any of those hitherto known of the genus or sub-genus *Trachyloma*, and should, I think, rather be referred to the former than the latter. As, however, fructiferous specimens are unknown, this matter must be left undecided for the present.

THUIDIUM, Schimp.

T. nano-delicatulum *Hampe* (*Cyrto-Hypnum nano-delicatulum*, *Hampe*) *S. pennula* *C. Mull.*, in *Bail. Syn. Queen. Bot.*, 3rd Supp. p. 98 (name only). Female plant robust, rigid, green, when old brown; stems stout, elongate, creeping, frequently divided, interruptedly rooted to the ground and alternately and arcuately rising from it, the divisions strikingly regular and densely bipinnate, pinnae 1.5-2 cm. long, arcuate, with subequal pinnules, 2-5 mm. long, the higher ones shorter, simple, or rarely indistinctly ramulose; cauline leaves distant, squarrose, plicate, from the base dilatate, subcordate,

suddenly alternate, aristate by the very lengthily exerted vein, with margins from base to centre more or less revolute, minutely crenulate, apex serrulate, vein thick, lutescent, ending in a stout awn, very long and serrulate; cellules incrassate, papillose, pellucid, oval, the basilar ones larger, the marginal subrotund, leaves in the branchlets minute, when dry adpressed, when humid erect, concave, ovate-lanceolate, with serrulate margins, vein pallid, beneath the apex vanishing, the back distantly spinulose, with stout papillose cells, subrotund, the apex truncate, crowned with acute papillæ, paraphyllia numerous, confervoid, ramose, papillose, perichæatial bracts fusciscent-lutescent, from the base delatate, towards the apex piliform, long, flexuose, margins erect, lengthily and beautifully fimbriate with filiform cilia, simple, apex denticulate, vein slender, cellules longer, narrower, and smoother; other parts unknown.

Hab.: Near Brisbane, *Bail.*; North Pine River, *G. T. Musson*.

Order HEPATICÆ.

DENDROCCEROS, Nees.

Fronds broad, linear, primately branched, remarkably crisped; lobes thin, and of a single stratum, occasionally divided into laciniae that simulate leaves; cellules quadrate, strengthened at the angles, gonidia none; costa well defined, slender, of more than one stratum. Reproductive organs monœcious; females rising from beneath the costa; capsules pedunculate, with exerted involucre; elaters of a single spire, perfectly helicoidal; antheridia biseriate in the costa.

D. crispatus (*Hook?*), *Nees. Trans. and Proceedings of the Bot. Soc. Edinb. xv. Part II. (Monoclea, crispata, Hook. Bot. Misc. ii. 117 t. 27.)* Fronds of a beautiful green, caespitose-procumbent, 2 cm. long, ascending, bipinnatifid, laciniae short, broadly linear, contiguous or subimbricate, strikingly sinuate-crisped, and plainly but slenderly costate; apex truncate-rotundate, often furcate; costa in section semilanceolate or oblong, in the middle 8 cellules thick, beneath slightly radicellose, at the interstices of the branches geniculate-subflexuose; cellulus of the fronds in a single stratum, moderate, quadrate-hexagonal, strengthened and thickened at the angles, within flexuose, and with a copious endochrome. Flowers monœcious; females showing above the frond, arising from the costa near the forks of the branches. Involucre at first short, with slender apex, clothing the base of the solitary obelavate oogonium, when mature linear-coroniform, erecto-incurved, the mouth protracted into a linguiform lip, papillose, carnosæ, 6-striate. Peduncles short, almost wholly immersed, base hidden within the oblong carnosæ involucre pallid of 3 layers of cells (6 in diameter), the central ones filled with chlorophyll. Capsule semiemersed, longer than the involucre, linear-cylindrical, rufous, bivalved, with filiform persistent collumella. Elaters medium, obtuse, furnished with spiral fibres. Spores rather large and rough. Antheridia uniseriate on both sides of the costa, solitary, subglobose, emerging from the apices of mamillæ.

Hab.: On bark of trees Tambourine Mountain, *C. J. Wild*, 1893.

First found on trees at the Island of St. Vincent. I believe Mr. Wild's specimens belong to the above, but until they have been examined by a specialist some doubts will remain.

D. Muelleri, *Stephani*, *Hedw.* 1889, page 6. Frond 3 cm. long, furcately divided, slender, deep green, base brownish; costa pallid, broad, thick, cavernose (cavities broadly tri-quadrisebate), the superficies therefore laxly reticulate, passing abruptly into the wings. Wings of a single stratum, crispate, scarcely broader than the costa, very deeply lobate, almost to the end of the frond separated into parts or segments; lobules repando-dentate, alternate, and simulating true leaves. Cellules $\cdot 035$ mm., with thickened nodulose angles, towards the margin $\cdot 017$ mm., the wings of the fronds perforate with intercellular interstices. Female flowers at the base of the bifurcations, surrounded by the large and strongly crispate lobules; involucre narrowly cylindrical, 4 mm. long. the cellules of the base 5-6 series thick. Andræcia approximating to the margin of the costa, 2-3 seriate, filled with large, obovate solitary anthers, the pedicels equalling them in length. Capsules 2 cm. long, $\cdot 05$ mm. in diameter, involucre about twice as long, fuciform, the base deep green (spores immature), above beautifully golden; cellules convex, $\cdot 035 \times \cdot 017$ mm., walls unequally thick; columella stout, spores green, 10-cellular, $\cdot 06$ mm. in diameter, cuticle granulate, florescent. Elaters $\cdot 5 \times \cdot 008$ mm., twisted into a single lax spiral.

Hab.: Bellenden-Ker Range, *Sayer*, 1886.

Order LICHENES.

The information given concerning the following lichens, reported for the first time as natives of Queensland, together with the notes and remarks on species whose descriptions have not been hitherto fully supplied, or which have been reported by other authors under incorrect or obsolete synonyms, is compiled for this Bulletin by Mr. John Shirley, B.Sc.

FAMILY I.—COLLEMACEÆ, *Mull. Arg.* Enum. Lich. Gen. p. 18.

TRIBE I.—COLLEMEÆ, *Korb.* Par. p. 408.

LEPTOGIUM, *Fr.* pro. p.

L. tremelloides, **v. isidiosa** *Mull. Arg.* Upper surface of thalline laciniae, and the margins, in places, provided with caespitose subfoliaceous isidiellæ.—*Lich. Beit.* 374.

Hab.: Main Range, near Toowoomba.

FAMILY II.—EPICONIACEÆ, *Mull. Arg.* Enum. Lich. Gen. p. 18.

TRIBE II.—CALICIEÆ, *Mull. Arg.* Enum. Lich. Genève p. 19.

CALICIUM, *Ach.*

C. trachelinum, *Ach.* Thallus cinerascens, thin, granulose, or frequently obsolete; apothecia medium or large, the capitulum turbinate-globose and red or reddish below, sporal mass black; spores blackish, ellipsoid, in the centre moderately constricted, 1-septate, $\cdot 008\text{--}\cdot 013 \times \cdot 004\text{--}\cdot 007$ mm.—*Nyl.* Syn. 1. 154.

Syn.—*C. glebosum v. concinnum*, *Wilson*, and *C. hymenosporum*, *Wilson*.

C. victoriae v. jejunum, *Wilson*. Botany Bulletin No. 2, p. 30.

Rev. F. R. M. Wilson says: "*C. jejunum*, reported by me (Trans. Lin. Soc. 1890), is now judged by me to be a *not clearly marked form of C. victoriae*."—Proc. Roy. Soc. Vict. 1893 p. 163.

PYRGILLUS, Nyl.

P. javanicus, *Nyl.* The following are synonyms of this lichen:—*Calicium stenosporum*, Wilson, Botany Bulletin No. 2, p. 29; and *Pyrgillus australiensis*, Wilson, Bot. Bull. No. 2, p. 31.

TYLOPHORON, *Nyl.* Prod. Lich. Nov. Gran. p. 430.

Thallus crustaceous, apothecia (at first wholly enclosed in whitish, or white, subglobose verrucæ, or thalline tubercles) with shortly cylindrical or cupular innate thalline receptacle. The sporal mass protruding; spermatogonia colourless, innate; sterigmata cylindrical, somewhat branched; spermatia acicular, straight. This genus differs from *Calicium* and *Trachylia*, as *Lecanora* differs from *Lecidea*.

T. triloculare, *Mull. Arg.* (nov. sp.) Thallus argillaceous or whitish, thinly tartareous, diffracto-areolate, and the whole surface crowdedly sub-granular; apothecia $\frac{1}{2}$ -mm. wide or less, much wider than high, the base thalline-girdled, elsewhere free; perithecium outwardly nigro-fuscous, the true margin obtuse, not truncate-acute; disk plane or sub-concave, and above nigro-fuscous; hypothecium nigro-fuscous; lamina hyaline and above usually evanescent, covered with a thick stratum of spores; spores in narrow asci, or free, ellipsoid, brown, '011-'013 x '0065 mm.

Hab.: Main Range, near Toowoomba.

ACOLIUM (Fee) D.N.

Apothecia crateriform, or now urn-shaped, sessile; a black proper excipulum, which is either naked or margined by an accessory thalline one. Spores spherical and simple, or 2-4 locular, or even muriform, brown. Thallus crustaceous, rarely lobulate, mostly uniform.—*Willey* Int. St. Lich. p. 40.

A. buelliaceum, *J. Mull.* (nov. sp.) Thallus white, very thin, rather smooth, continuous or slightly rimulose, margin effuse; apothecia when evolute 1 mm. wide, sessile, three times broader than high, truncate-plane, and girdled with a thick entire, pulverulent border. Between the proper black margin and the white thalline one there is a vestige of a third integument. The junior apothecia are enclosed in small hemispherical verrucæ; disk plane, black, slightly albo-pulverulent; spores brown, bilocular or 3-locular, '01-'011 x '006-'0065 mm.

Hab.: Main Range, near Toowoomba.

FAMILY III.—LICHENACEÆ, *J. Mull.*, Lich. Socot. and Enum. Lich. Gen. p. 18.

TRIBE III.—CLADONIEÆ, *J. Mull.* Enum. Lich. Gen. p. 22.

CLADONIA, Hoffm.

PHÆOCARPÆ SCYPHOPHORÆ.

C. fimbriata v. antilopæa, *J. Mull.*, s. *Cladonia delicata*, Wilson (non. Flk.); Lich. Fl. Queensl. p. 17.

C. degenerans, *Ach.*; **v. pleolepis**, *Flk.* Podetia short, cinereo-fuscescent, rigid, foliaceous-squamulose; scyphi irregular, lacerate-erisped, here and there at the margins ramose, proliferous, substerile.—*Acharius*, *Syn. Lich.* p. 259.

Hab.: Main Range, near Toowoomba.

PHLEOCARPÆ ASCYPHÆ.

C. furcata v. foliolosa, *J. Mull.* Podetia $\frac{1}{2}$ in., nigrescent, rigid, squamose-granulose, sparingly foliolose; apices cylindrical right up to the apothecia, and not at all scyphose-incrassate.

Syn.—*C. pityrea v. foliolosa*, *J. Mull.*, *Lich. Beit.* 1005.

Hab.: Mount Perry.

ERYTHROCARPÆ SCYPHOPHORÆ.

C. macilenta, v. flabellulata, *J. Mull.* (var. nov.) Podetia 9-12 mm. long, below 2-3 mm. thick or thinner, from the centre or higher copiously and finely flabellose-ramose, wholly granulose-pulverulent and destitute of scales.

Hab.: Wickham Terrace, on moist earth.

TRIBE IV.—RAMALINEÆ, *Th. M. Fries*, *Gen. Heterolich* p. 50.

RAMALINA, *Ach.*

R. Ecklonii, *Mnt.*; **v. tenuissima**, *Mey. et Flot.* Frond $\frac{1}{3}$ - $\frac{1}{2}$ in. long, laciniae at the base about 1 mm. wide or narrower, gradually becoming finely acuminate, slightly canaliculate-concave or subplane. Spores $\cdot 012\text{-}\cdot 014 \times \cdot 005\text{-}\cdot 0055$ mm., slightly curved or wholly straight. *Rev. Lich. Mey.* p. 311, *Lich. Beit.* 1478.

Hab.: Main Range, near Toowoomba.

R. inflata, v. olivacea, *J. Mull.* Thallus olivaceous-obscure; apothecia obsoletely ærugino-se-pruinose. In all other respects wholly agreeing with the type. Thallus here and there perforate. Spores straight, $\cdot 01\text{-}\cdot 014 \times \cdot 004\text{-}\cdot 005$ mm. *Lich. Beit.* 128.

Hab.: Main Range, near Toowoomba.

ALECTORIA, *Ach.*

A. australiensis, *C. Knight.* Possesses no gonidia, and is now known to be nothing more than an undeveloped form of the fungus *Marasmius equicrinis*.

TRIBE V.—USNEÆ, *Th. M. Fries*, *Gen. Heter.* p. 47.

USNEA, *Hffm.*

U. barbata, v. asperrima, *J. M.*, is a synonym of *Eumitria Baileyi*, *Stirton.* *Lich. Fl. Queens.* p. 26.

TRIBE VI.—PELTIGERÆ, *J. Mull.*, *Lich. Gen.* p. 29.

PELTIGERA, *Hffm.*

P. polydactyla, v. dissecta, *J. Mull.* Thallus as in the type, but the thalline laciniae at the margins are undulate, minutely and crowdedly microphylline-dissect. Apothecia resemble those of *v. microcarpa*, *Ach.*, of this species. *Lich. Beit.* 1624.

Hab.: Main Range, near Toowoomba.

TRIBE VII.—PARMELIÆ, *J. Mull.*, Lich. Gen. p. 31.STICTINA, *Nyl.*

S. crocata, v. esorediata, *J. Mull.* s. *S. intricata*, Stirton (non *Del.*). Lich. Fl. Queens. p. 50.

S. brevipes, *J. Mull.* s. *S. marginifera*, Tayl. Lich. Fl. Qd. p. 55.

S. fuliginosa, *Nyl.*, Syn. i. 347. Thallus cervine or cinereo-fuscescent, moderate or small (2-4 inches), stiff, either rather smooth or unequal or sparingly scrobiculate-rugose, slightly shining or almost opaque, monophyllous, variously lobed, lobes rotundate; above somewhat efflorescent with brown or blackish coralloid isidia, beneath pallid; tomentum moderate or little; cyphellæ whitish or pallid; apothecia fusco-rufescent, about 1 m.m., scattered, often when young with margin whitish pilose-ciliate; spores colourless, fusiform, 1-3 septate $\cdot 027\text{--}\cdot 04 \times \cdot 007\text{--}\cdot 008$ mm.

Hab.: Mount Mistake.

S. quercizans, *Ach.* s. *S. tomentella*, Leighton (non Humb.) Lich., Fl. Queens. p. 54.

S. suborbicularis, *J. Mull.* s. *S. subtomentella*, Knight, and *S. macrophylla*, Auct. Lich. Fl. Queens. p. 54.

S. Freycinetii, v. isidiosula, *J. Mull.* Thallus roughened over with coarse isidiose granules.

Hab.: Main Range, near Toowoomba.

STICTA, *Ach.*

S. endochrysea, v. Urvillei, *J. Mull.*, Lich. Hariot e Feuer. s. *S. Urvillei*, *Nyl.* Lich. Fl. Queens. p. 60. *Fide J. Mull.* L.B. 1303.

S. endochrysea, v. flavicans, *J. Mull.*, Lich. Hariot e Feuer. s. *S. flavicans*, Hook. et. Tayl. Lich. Fl. Queens. p. 61. *Fide J. Mull.* L.B. 1300.

S. variabilis, v. papyracea, *J. Mull.*

Hab.: Main Range, near Toowoomba.

S. Seemanni, *Bab.* Strikingly resembles *S. dichotomoides*, *Nyl.* in colour of upper and lower surfaces, in laciniation, and in the shape and position of the apothecia; it can, however, be readily separated from its ally by its glabrous under surface, which, in *S. dichotomoides*, *Nyl.*, is tomentose.

Hab.: Main Range, near Toowoomba.

S. impressa, *H. et Tayl.*, s. *S. physciospora*, *Nyl.*, and *S. Bornetii*, *J. Mull.*, Lich. Fl. Queens. p. 63.

PARMELIA, *Ach.*

GLAUDESCENTES.

P. cetrata, *Ach.*; **v. sorediifera**, *Wainio*. A soredioid form of the lichen thus described by Acharius:—Thallus suborbicular, helvopallescent, nude; beneath black, hispid, lobes sinuate-laciniate, pedate, rather narrow, with broader apex, inciso-crenate, rotundate, ultimate segments retuse, subciliate; apothecia at length dilatate, plane, large, fusco-atrous, imperforate. Syn.—*P. cristulata*, *Fee*, *P. perforata*, *Nyl.* (non *Ach.*), *fide J. Mull.*, Lich. Cath. No. 38; *P. macrocarpoides*, *Wn.*, *P. homotoma*, *Nyl.*

Hab.: Main Range, near Toowoomba.

P. perlata, v. ciliata, DC. Differs from the type in the thallus being strikingly nude below, and the margin nigro-ciliate. Spores $\cdot 025\text{--}\cdot 028 \times \cdot 014\text{--}\cdot 017$ mm. Spermatia bifusiform $\cdot 005 \times \cdot 0006$ mm. Nyl. Syn. i. 380, and Lich. Ins. Guin. p. 10.

Hab.: Main Range, near Toowoomba.

P. tiliacea, v. sulphurea, Tuck., s. P. tiliacea f. asperata, J. Mull. L.B. 570. Thallus densely and finely isidiose-asperate on the upper surface, strongly resembling *P. tiliacea f. scortea*, but within sulphureous.

Hab.: Main Range, near Toowoomba.

P. tiliacea, v. rugulata, J. Mull., s. P. caperatulata, Stir. (non Nyl.). Lich. Flor. Queens. p. 45.

P. meizospora, Nyl. s. P. tiliacea, v. meizospora, Nyl. Lich. Fl. Queens. p. 42.

P. Hookeri, Tayl., resembles *P. tiliacea*, Ach., and *P. lævigata*, Ach., but thalline laciniae discrete, sinuate incised, and strongly atrorhizose. Spores $\cdot 008\text{--}011 \times \cdot 006\text{--}008$ mm. Syn.—*P. sublævigata* Nyl., and *P. tiliacea v. sublævigata*, Nyl.

Hab.: Main Range, near Toowoomba.

P. prætervisa, J. Mull. s. P. tinctorum, Despr. Lich. Fl. Queens. p. 43, and P. perlata, v. prætervisa, J.M.

P. tenuirima, Tayl. Thallus suborbicular, inciso-lobate, pallid castaneous, margin with undulate lobes, crenate, subelevate, when old rugose, when young unequal; soredia white, filling very short, almost simple furrows; apothecia large, very concave, with thin margin, at length fractured, disk pallid castaneous. Spores $\cdot 014\text{--}\cdot 016$ mm. long, ellipsoid or ovoid.

Hab.: Main Range, near Toowoomba.

OCHROLEUCÆ.

P. adressa, Kremp. s. P. amplexula, Stirton Lich. Fl. Queens. p. 44.

P. rutidota f. sorediosa, J.M. Thallus above everywhere sprinkled over with isidiose soredia, $\frac{1}{2}$ mm. broad or less, hemispherical. Syn.—*P. ochroleuca f. sorediosa*, J. Mull. L.B. 574.

Hab.: Main Range, near Toowoomba.

P. limbata, Lam. s. P. insinuata, Knight (non. Nyl.). Lich. Fl. Queens. p. 47.

HYPOGYMNIÆ.

P. physodes, v. pulverata, J.M. Thallus very variable, above usually leprose-pulverulent, beneath always in part whitish or pallid, laciniae unequal, narrow and broad mixed, the latter 4-6 mm. broad, the former $1\frac{1}{2}\text{--}2$ mm. Very nearly approaching *P. physodes, v. mundata*. Syn.—*P. mundata, v. pulverata*, Nyl., *P. subphysodes*, Kremp. Lich. Beit. 577.

Hab.: Main Range, near Toowoomba.

ANAPTYCHIA, Trev.

Separated from Physcia, which it resembles in the structure of the apothecia, by the nature of the cortical stratum, in this genus consisting of a double layer.

A. leucomelæna, *Trev.*, s. *Physcia leucomela*, Lich. Fl. Queens. p. 70.

A. comosa, *Trev.*, s. *Physcia comosa*, v. *alata*, Wilson, and *Theoloschistes chrysophthalmus*, v. *alata*, Shirley. See Bot. Bull. No. 2, p. 32, No. 5, p. 32.

A. speciosa, v. **sorediosa**, *J.M.* Thallus as in the normal form of this species, but the margins of the laciniae furnished with large subregular or confluent, subfarinose soredia, cilia white; margins of apothecium subentire, smooth. L.B. 582.

Hab.: On bark, Main Range, near Toowoomba.

A. speciosa, v. **hypoleuca f. sorediifera**, *J.M.*

Hab.: Main Range, near Toowoomba.

PHYSCIA, Fr. pro p.

P. stellaris, v. **acrita**, *Nyl.* Laciniae contiguous, in the margin sparingly discrete, the centre often rugose; rhizinae cinerascens; apothecia with entire margin. Lich. Scand. p. 139.

Hab.: Main Range, near Toowoomba.

TRIBE VIII.—PYXINEÆ, *J. Mull.*, Lich. Parag. p. 6.

PYXINE, Fr.

P. endochrysa, *Nyl.* Thallus glaucescent, resting on a black hypothallus, which is more or less revealed between the laciniae, laciniae short, sparingly pinnatifid, terminations rounded, bilobate; margins albo-sorediate; under surface blackened; fracture and medulla florescent. Sterile.

Hab.: Main Range, near Toowoomba.

P. Meissneri v. endoleuca, *J.M.* Thallus white within, or whitish, agreeing with *P. Meissneri* in all other respects, the apothecia, when young, being plane and lecanorine, and spores 0.17-0.21 mm. long. L.B. 118.

Hab.: Mount Gravatt, on rocks.

P. Meissneri f. sorediosa, *J. Mull.* Thallus particularly at the margins of the lobes flavidulo-sorediose. L.B. 118.

Hab.: Main Range, near Toowoomba.

TRIBE IX.—PANNARIÆ, *Korb.* Lyst. p. 105.

PANNARIA, Del.

P. mariana f. isidiosa, *J. M.* L. B. 1159, s. *P. pannosa f. isidioidea*, *J. M.*

Hab.: Main Range, near Toowoomba.

ERIODERMA, Fée.

Apothecia scutelliform, marginal on the now extended lobes; spores simple, at length colourless. Thallus villous and now veiny beneath, with a pannose hypothallus, the cortical layer there wanting. —*Willey*, Lich. Sp. p. 33.

E. Knightii, *Shirley*, s. *Platysma eriophyllum*, C. K. Lich. Fl. Queens. p. 32.

TRIBE X.—COCCOCARPIÆ, *J. Mull*, Lich. Schenke.

COCCOCARPIA, Pers.

C. aurantiaca, *Mnt. et v. d. Bosch*. s. *Leptogium cærum*, Wilson Bot. Bull. No. 2, p. 28.

C. pellita, v. incisa, *J. Mull*. Thallus firm; laciniae deeply and radiately incised, in outline narrower than in the type; the centre isidiophorous; apothecia badio-fuscous. Syn.—*C. molybdæa v. incisa*, Nyl.; *Obryzum myriopus f. isidiosum*, Wilson Lich. Fl. Queens. p. 9.

C. pellita, v. smaragdina, *J. Mull*, s. *C. smaragdina*, Pers. Lich. Fl. Queens. p. 82.

TRIBE XI.—PSOREÆ, *J. Mull*. (Psorei, *Th. M. Freis*. Gen. Het. p. 79), Lich. Parag. p. 8.

PSORA, *J. Mull*, pro p.

P. parvifolia, v. subgranulosa, *J. M.* Thalline laciniae, granuliform exiguous, angulose or digitately crenate, incised, cinereo-virescent, beneath very minutely albido-hirsute; apothecia pallid, marginate, within whitish, lamina and hypothecium hyaline or subhyaline. Spores $0.11-0.12 \times 0.025-0.03$ mm. Differs from *v. granulosa*, Tuck., in the narrow spores, and hyaline hypothecium.

Hab.: Main Range, near Toowoomba.

THALLOIDIMA, *J. M.*

T. cæruleo-nigricans, *J. Mull*, s. *Lecidea cæruleo-nigricans*, Lghtf. Bot. Bull. No. iv. p. 26.

TRIBE XII.—LECANOREÆ, *J. Mull*, Lich. Socot. p. 359.

LECANORA, Ach.

L. subimmersa, *J. Mull*. (Sp. nov.) Thallus white, medium, granulose-rugulose, surface firm; apothecia $\frac{1}{2}-2\frac{1}{2}$ mm. wide, the junior ones wholly immersed, plane, outwardly and inwardly black, rather shining and sublecidine, finally slightly emergent and then showing an entire or slightly undulate thalline margin; in other respects this species resembles *L. atra*. The lamina is mostly violet-brown. The spores $8, 0.1 \times 0.06-0.065$ mm.

Hab.: Rosewood Scrub.

L. lacteola, *J. Mull*. (Sp. nov.)

Hab.: Main Range, near Toowoomba.

L. subfusca, v. distans, *Nyl*. Thallus whitish, rugulose unequal, determinate; apothecia rufo-pallescens, to 1 mm. or somewhat less, thalline margin entire or obsoletely crenulate; spores 8 , ellipsoid, simple, $0.15-0.18 \times 0.07-0.08$ mm.; paraphyses slender.

Hab.: Main Range, near Toowoomba.

L. subfusca, v. testaceo-pallida, *J. Mull*. Wholly resembles *v. chlorona*, but apothecia when moist exhibit a testaceo-pallid colour. L. B. 200.

Hab.: Main Range, near Toowoomba.

L. subfusca, v. cinereo-carnea, Tuck. Very similar to the preceding variety, but differs in the colour of the apothecia when moistened; spores 009-014 x 005-006 mm. Syn.—*Parmelia varia* v. *cinereo-carnea*, Eschw., *Leeanora leprosa*, Fée.

Hab.: Main Range, near Toowoomba.

L. atra, v. virens, J. Mull. Thallus greenish olivaceous, when moist intensely or obscurely green. L.B. 495.

Hab.: Main Range, near Toowoomba.

L. interjecta, J. Mull. s. *L. umbrina*, Stirton (non Nyl.) Lich. Fl. Queens. p. 89.

CALLOPISMA, De Not.

C. cinnabarinum, v. opacum, J. Mull. Thallus ferrugineous, opaque. L.B. 333.

Hab.: On rocks, Mount Perry.

C. conjungens, J. Mull. Thallus white, thin; apothecia ferrugineo-rufous, or rubenti-ferrugineous, 1-1.5 mm., girdled by a depressed or almost obsolete thalline margin; spores 011-016 x 007-009 mm. Differs from *L. russeola* in the entire thalline margin. Lich. Nov. Gran. p. 442.

Hab.: Sandgate.

PERTUSARIA, DC.

LECANORASTRUM.

P. sulphurata, J. Mull. Thallus sulphureo-stramineous or stramineo-pallid, slightly granose-rugose, rugulae crowdedly subdiscrete; verrucæ 7-1 mm.; as very small hemispheres, slightly convex, when sterile usually truncate and sulphureo-pulverulent. Apothecia unknown.

Hab.: On rocks near Brisbane.

P. globulifera, Nyl. Thallus greyish, cartilagineo-membranaceous, verrucose-rugose, albo-soresiate, smooth, zonate and brown at the circumference; verrucæ large, globular, closed, slightly depressed, lycoperdoid, eventually lacerato-dehiscent, and pseudo-seutelliform, albo-soresiate; spores 1 or 2, colourless, ellipsoid, simple, large.

Hab.: Main Range, near Toowoomba.

P. commutata, J. Mull. Closely resembles *P. multipunctata*, but the disk of the apothecium is carncous or rosellate, as in *P. velata*. It differs from *P. subvaginata*, Nyl., in the smaller verrucæ, which are neither shortly cylindrical nor distinctly constricted. The thallus is commonly rimose-diffract, and often more or less papillose-exasperate; when young it is olivaceous, but afterwards strongly albescent. At all stages it is less white and less smooth than *P. velata*.

Syn.—*Variolaria amara*, Fee; and *v. fulva* Fee is *v. variolosa*, J. Mull. L.B. 706, and Rev. Lich. Fee. p. 4.

Hab.: Main Range, near Toowoomba.

POROPHORA.

P. (Pustulatæ) lactea, Nyl. s. *P. soresiate*, C.K. Lich. Fl. Queens. p. 99.

P. (Depressæ) depressa, v. octomera, J. Mull. Thallus albidocinereous, thin, smooth or smoothish; verrucæ hemispherical, solitary or 2-3-confluent, outline often regularly orbicular and the base

clearly circumscripto-distinct, and not gradually passing into the thallus, smooth or smoothish, apex depressed, in the depression crowdedly 1-many-ostiolate; ostiola nigricant or atro-olivaceous, finally often maculari-confluent, stoutish; spores 6-8, $\cdot 07\text{--}\cdot 085 \times \cdot 035\text{--}\cdot 06$ mm., within smooth.

Syn. — *Porina depressa*, Fée.

Hab.: Main Range, near Toowoomba.

P. (Depressæ) undulata, J. Mull. Thallus and verrucæ slightly florescent-albid, in places thin, rugulose, finally rimose; verrucæ 1 mm. wide, depresso-hemispherical, in base undulate, 3-5-gibbose, surface smooth, towards the base merging into the thallus; vertex at first obtuse, then subexcavate-depressed and adorned with brownish or colourless ostiola; spores 8, $\cdot 03\text{--}\cdot 75 \times \cdot 027\text{--}3$ mm., within smooth.

Hab.: Toowoomba, on bark.

DIPLOSCHISTES, Norm. Mag. naturvid. vii. 1853 p. 232.

D. actinostomus, Zahl., s. *Urceolaria actinostoma*, Sch.; *U. novæ-zealandiæ*, C. K.; *U. plumbata*, Wilson (in lit.); *Lecidea clausa*, C. K., Lich. Fl. Queens. p. 123.

TRIBE XIII.—GYALECTEÆ, J. Mull., Lich. Parag. p. 12.

GYALECTIDIUM, J. Mull.

Thallus crustaceous; gonidia globose, green; apothecia lecanorine, margin simple, outwardly thalline. Paraphyses clathrately connected. Spores hyaline, parenchymatous. Differs from *Gyalecta* in the structure of the paraphyses.

G. phyllocharis, J. Mull., s. *Lecidea phyllocharis*, Mnt. Lich. Fl. Queens. p. 115.

G. filicinum, J. Mull. Thallus suborbicular, small, very thin, cinereo-virescent, rather shining, more or less granulate, margin sub-effused or concolorous; gonidia globose, 5-8 μ wide; apothecia $\frac{1}{2}$ mm. or slightly larger, crowded, slightly depressed, thickly marginate, and at first innate-lecanorine, margin outwardly somewhat gibbose-unequal, and gradually disappearing in the thallus, within white, disk pallid fuscous, nude; lamina wholly hyaline, tough; paraphyses strikingly slender; asci 1-spored; spores $\cdot 03\text{--}\cdot 035 \times \cdot 012\text{--}\cdot 016$ mm., transversely about 12-septate, longitudinally 3-5-septate. L. B. 253.

Hab.: Main Range, near Toowoomba.

TRIBE XIV. LECIDEÆ, J. Mull., Enum. Lich. Genève p. 50.

LECIDEA, Ach.

EULECIDEA.

L. albo-cærulescens, Wulf., s. *L. subnubila*, Stirton. Lich. Fl. Queens. p. 108.

BIATORA.

L. impressa, Kremp., s. *L. plumbeella*, J. Mull., and *Lecanora (Aspicilia) lævissima*, C. K. Lich. Fl. Queens. p. 91.

L. piperis, *Spreng.*; **v. melanocarpa**, *J. Mull.* Thallus fuscuscent; apothecia from the first black or blackish; hypothecium thick, rufo-fuscous. *Rev. Eschw.* p. 16. *Syn.*—*L. sabuletorum* **v. brasiliensis**, *Eschw.*

Hab.: Mount Mistake and Rosewood Scrub.

PATELLARIA, *J. Mull.*

Sect. PSOROTHECIUM.

P. melaclina, (*Nyl.*) *J. Mull.*

Hab.: Main Range, near Toowoomba.

Sect. CATILLARIA.

P. alboflavicans, *J. Mull* (sp. nov.). Thallus thin, rimulose or at length diffracto-areolate, at first, however, continuous, outline effuse; apothecia 7-15 mm., appressed-sessile, at first plane and thinly margined, then finally convex and immarginate, rather thin, wholly black and nude, opaque; epithecium olive black; hypothecium atrofuscos; spores ellipsoid-fusiform, rather incurved, equally bilocular, 012-5 x 005-7 mm.

Hab.: On rocks near Brisbane; and Mount Mistake.

Sect. BACIDIA.

P. intermixta, *J. Mull.* Thallus thin, white, effuse, soon scurfy and granulate, and now sorediferous, ashy green and fuscouscent or evanescent; apothecia small, adnate, brownish, flattish, pale within; border obtuse or wanting; spores ellipsoid, 1-septate, 012-023 x 004-008 mm. *Tuck. North Am. Lich.* pp. 30, 31.

Hab.: Helidon, on bark.

P. millegrana, *J. Mull.* Thallus whitish, subdeterminate, granulate-rugose; apothecia pallid, carneous, or carneo-fuscouscent, to about 1 mm., plane or rather convex, marginate, margin commonly pallid or pallid whitish; spores 9-27 septate, 06-114 x 0045-005 mm.; paraphyses slender. s. *P. heterochroa*, *J. Mull.*

Hab.: Main Range, near Toowoomba.

P. millegrana, **v. fusco-nigrescens**, *J. Mull.* Apothecia with fuscous or fusco-nigrous epithecium, and spores 08-087 x 0045-0055 mm. s. *L. fusco-nigrescens*, *Kremp.*

Hab.: Main Range, near Toowoomba.

BUELLIA, *De Not.*

B. lactea, *Korb.*, s. *Lecidea saxatilis*, *Stirton* (non *Schaer.*) *Lich. Fl. Queens.* p. 121.

B. subareolata, *J. Mull*, *Lich. Parag.* 130. Thallus rather thin, cinereo-flavicaunt, margin effuse, in other parts continuous, finally towards the margin rimose-areolate or spuriously areolate, surface sub-unequal; spurious areolae plane, not at all polished; apothecia appressed-sessile, black, nude, 05-08 mm. wide; plane, thickly margined, margin somewhat atrofuscos; epithecium, rufo-fuscous; hypothecium, a deep brown; spores 8, biscriate, 2-locular, 016-8 x 007-8 mm.

Hab.: Mount Mistake.

B. subarenaria, *J. Mull.* (sp. nov.).

Hab.: Hill End, on rocks.

B. rimulosa, *J.M.*, Lich. Beit. 1442. Thallus white, limitate, thin, smooth, continuous, usually crowdedly areolate-rimulose, not diffract; areolae contiguous, very small; apothecia 3 mm. wide, at first immersed and often spuriously thalline margined; epitheciium fusco-nigrous; hypothecium above fusco-subhyaline, below in thick stratum rufo-nigricant; paraphyses at the apex strongly clavate; spores 8, 2-locular, $\cdot 009\text{--}11 \times \cdot 0045\text{--}5$ mm., the centre scarcely constricted.

Hab.: Main Range, near Toowoomba.

HETEROTHECIUM, Flot. (pro p. Mass.).

Thallus crustaceous, gonidia commonly globose; apothecia (biatorine) lecideine, paraphyses not connexo-ramose; spores muriform and hyaline. Lich. Beit. 260.

H. vulpina, *Tuck.*, s. *L. domingensis* v. *gyrosa*, Stirton Lich. Fl. Queens. p. 117.

H. fusco-luteum, *J. M.*, s. *L. fusco-lutea*, Dieks, Lich. Fl. Queens. p. 115.

TRIBE XV.—CENOGONIEÆ, *J. Mull.*, Lich. Parag. p. 18.

Gonidia confervaceous; apothecia lecideine-biatorine.

CENOGONIUM, Ehrenb.

C. confervoides, *Nyl.*, s. *C. interpositum*, *Nyl.* Lich. Exot. p. 259. Thalline filaments $\cdot 012\text{--}8$ mm. thick. Prod. Lich. Nov. Grau. p. 456.

Hab.: Mount Mistake.

TRIBE XVI.—THELOTREMEÆ, *J. Mull.*, Graph. Féc p. 5.

OCELLULARIA, *J. Mull.*

O. leucotylia, *J. Mull.* Thallus whitish, rather shining, rugulose, thin or very thin, indeterminate, apothecia colourless, enclosed in white, opaque, subglobose, finally rotundate-diform thalline tubercles; $\cdot 9\text{--}1\cdot 4$ mm.; above unequal, the corneo-nigricant epitheciium showing; spores 8, colourless, oblong, 4-6 locular, $\cdot 014\text{--}8 \times \cdot 006\text{--}7$ mm. Lich. Andam. p. 7.

Hab.: Bellenden-Ker.

O. phlyctioides, *J. Mull.* Thallus somewhat clayey whitish, thin, smooth and opaque, continuous; apothecia 1 mm. in outline undulate-irregular, slightly emergent; margin rather thick, patent, stellately aperient, then incomplete or obliterate, the interior one white, at first connivent, then radiately dehiscant, finally wide open; disk depressed, plane, albo-pulveraceous; lamina aqueo-hyaline; hypothecium florescent-hyaline; spores 5-8, hyaline, $\cdot 013\text{--}7 \times \cdot 005\text{--}6$ mm., elongate-ellipsoid, 4-6 locular.

Hab.: On bark, Brisbane.

O. endomelæna, *J. Mull.* Thallus chalky-white, thin, smooth, rather powdery; apothecia $\cdot 3\text{--}7$ mm., innate-emergent, concolorous with thallus, the emergent part depressed, hemispherical, towards the base disappearing in the thallus; margin obtuse, within subangulose, apex white, elsewhere fusco-nigrous; disk very little disclosed, nearly black; spores 8, $\cdot 03\text{--}34 \times \cdot 008\text{--}9$ mm; 8-9 locular.

Hab.: On bark, near Brisbane.

PHÆOTREMA, J. Mull.

P. cricotum, J. Mull., s. *Ocellularia cricota*, Wilson, *fide* Mull. Arg.

LEPTOTREMA, J. Mull.

L. compactum, Nyl. Given in L.B. 1184, as a Queensland lichen, with reference to Nyl. Prod. Nov. Gran., p. 46. No such plant is named in the Prodromus, and *L. compunctum* is evidently intended.

THELOTREMA, Ach.

T. inturgescens, J. Mull. Thallus stramineo-cinerascent, thin, from continuous and smooth, usually areolate-rimose; areolæ strongly inturgescens, and as if bullate-multigibbose; surface smooth, many fruited; apothecia profoundly innate, globose, to 4 mm., apex with very narrow, .05, ostium; peritheciium within fulvescent; spores hyaline, solitary, .27 x .04, closely parenchymatous.

Hab.: On bark, near Brisbane.

T. cupulare, J. Mull. Thallus obscurely olivaceous, very unequal, firm, cartilaginous, shining; apothecia erumpent, usually wide, cupular, deeply concave; margin opening widely, at first stellate-patent or recurved, then subobsolete, and with the disk albo-farinose, the interior wholly albo-hyaline; spores 8, .015-7 x .005-6 mm., 6-locular, middle loculi, 2-locellate.

Hab.: On bark, Brisbane.

TRIBE XVII.—GRAPHIDEÆ, J. Mull., Graph. Fée pp. 4 and 13.

SUB-TRIBE I.—EUGRAPHIDEÆ, J. Mull.

OPEGRAPHIA, Nyl.

O. Bonplandi, v. *abbreviata*, J. Mull., Graph. Fée p. 17. Lirellæ much abbreviated; spores .03-.045 x .0035-.0045 mm., narrow fusiform, 7-9 septate, often from hyaline finally olivaceo-obscure.

Hab.: Main Range, near Toowoomba.

O. varia, v. *diaphora*, Nyl. Thallus white, pulverulent; lirellæ elongate, attenuate at both extremities, epithecium plane; proper margin persistent, flexuose; spores 8, colourless, irregularly obovate or obovate-fusiform, 5-septate, .024-6 x .007 mm. Leighton Lich. Fl. Gt. Brit. pp. 404-5.

Hab.: Mount Mistake.

O. vulgata, v. *subsiderella*, Nyl. Thallus greenish-white, cartilagineo-membranaceous, cracked and scaly, effuse; lirellæ prominent and sessile, radiate-ramose, wavy and shining or greasy; epithecium rimiform, uniform; proper margin thick, very round and inflexed; spores 8, colourless, fusiform, 5-septate, .015-.02 x .003-4 mm. Leighton Lich. Fl. Gt. Brit. p. 407.

Hab.: Rosewood Scrub.

O. (Lecanactis) platygraphoides, J. Mull. Thallus cinerascens-whitish, thin, closely areolate-rimose; gonidia chroolepoid, with elliptical joints; apothecia 1-2 mm., sessile, orbicular, thick, obtusely crasso-marginate, more or less provided with a thalline coating, and in part girded with a thin, white fugaceous thalline margin, beneath which it is brown; at length undulate, irregular, and

accrescent, 2·5-3 mm., proper margin as if an elongation of the periphery of the thick nigro-fuseous hypothecium; disk plane, when young albido-pruinose; spores 8, hyaline, subclavate, narrow below, $\cdot 03\text{--}05 \times \cdot 004\text{--}5$ mm., 4-locular.

Hab.: On bark, near Brisbane.

GRAPHIS, J. Mull.

G. emersa, *J. Mull.* (sp. nov.). Thallus indicated by a white halo; lirellæ sessile-emergent, 1-2·5 mm. long and $\cdot 2$ mm. wide, wholly simple and straight, differing in direction, wholly black and nude, linear, thickish, constricted towards the base; lips closely connivent, not at all sulcate; perithecium at the base complete, everywhere black; spores 8, hyaline, $\cdot 03 \times \cdot 008$ mm., fusiform, 9-10 locular.

Hab.: Mount Mistake.

G. (Eugraphis) Lineola, *Ach.*, *Syn.* p. 80. Thallus rather soft, smooth, whitish, subpruinose; apothecia scattered, very slender, long, straitish, simple, bordered by a tumid spurious thalline margin, at length emergent, sessile, cylindrical, disk subrimiform. *Syn.*—*G. comma*, *Mass.*, and *Nylander* in *Prod. Nov. Gran.* p. 73.

Hab.: Cleveland.

G. (Aulacographa) duplicata, *Ach.*, *Syn.* p. 81. Thallus thin, white, subdeterminate; apothecia rather prominent, elongate, straight, and flexuose; disk rimiform, margin of perithecium at length duplicate; thalline margin nearly wanting; spores $\cdot 02\text{--}5 \times \cdot 007\text{--}01$ mm.

Hab.: Main Range, near Toowoomba.

G. duplicata, **v. sublævis**, *J. Mull.*, *Graph. Féc.* p. 35. Lirellæ entire, or a few with lips longitudinally 1-sulcate. *Syn.*—*G. striatula v. sublævis*, *Nyl.*, *Opegrapha peruviana*, *Féc.*

Hab.: Rosewood Scrub.

G. (Fissurina) insidiosa, *J. Mull.* Thallus thick, uneven, warty, dull green, brownish when dry; apothecia crowded, deeply immersed in warts of the thallus, simple or branched, closed; lips paler; spores 1-seriate, ovoid or obovate, yellow, $\cdot 017 \times \cdot 0075$ mm., 3-septate.

Hab.: Main Range, near Toowoomba.

G. Baileyana, *J. Mull.* (sp. nov.). Thallus ochroleuco-albid, thin, smoothish or obsoletely rugulose, at length rimulose, widely effuse; lirellæ linear, branched and subflexuose, at length wide, varying much in outline, attaining 5 mm. by 1 mm., broadly or narrowly elliptical, when young thalline marginate, finally subimmarginate and plane, thin; disk when dry clothed with a pruinose leaden-white stratum, when moist obscurely fleshy; within hyaline; spores 3-4, $\cdot 045\text{--}75 \times \cdot 008\text{--}01$ mm., 12-18 locular.

Hab.: Main Range, near Toowoomba.

GRAPHINA, J. Mull.

G. pyelodes, *Wilson*, *Bot. Bull.* 7 p. 32, is *Phæographina quasiæcola*, *J. Mull.*, s. *Graphis exserta*, *Nyl.*

TREMOTYLUM, J. Mull.

T. nitidulum, *J. Mull.* Thallus whitish, thin, rimulose, rather smooth and shining, with numerous stromatiform verrucæ, elongate

but irregular and deplanate, gradually uniting with the thallus; verrucae smooth and finely verruculose, furnished with very small, not at all numerous, non-emergent ostiola; perithecium olivaceous within the apex, elsewhere hyaline; spores solitary, hyaline, $2 \times .04$ mm., linear ellipsoid, parenchymatous.

Hab.: Brookfield, on bark.

ARTHOTHELIUM, J. Mull.

A genus differing from *Arthonia* in its parenchymatous spores.

A. puniceum, *J. Mull.* Thallus obsolete; apothecia stellately erumpent from the epidermis, to 1 mm. wide, blood red, nude, flat, orbicular or slightly angulose, often faintly powdery, when evolute superficial, and girdled with the torn, purplish epidermis; perithecium wanting; hypothecium olive-brown, thin; lamina hyaline, paraphyses rigid, not separable, sparingly connected; spores 8, hyaline, $.023-6 \times .009-.01$ mm., 6-locular, the four central ones 2-3-locellate.

Hab.: Brookfield, on bark.

SUB-TRIBE II.—GLYPHIDEE, *J. Mull.*, Graph. Fée pp. 4 and 61.

CHIODECTON, Ach.

C. sphærale, *Ach.* s. *C. stromaticum*, C.K. Lich. Fl. Queens., p. 157.

C. (Enterographa) endoleucum, *J. Mull.* Thallus whitish, thin, usually closely rimulose, and finally rimose-granular, outline effuse, neither zonate nor byssoid, but at length albo-farinulent; stromata in the part emerging either suboblong and irregular or convex and hemispherical, white mealy, within white, above with many scattered perithecia; ostiola 2, orbicular or elliptical, black and nude; perithecium above and at the sides thinly browned; spores 8, $.026-35 \times .0035-5$ mm., arcuate, at both ends obtuse, 4-locular.

Hab.: Toowoomba, on bark.

SARCOGRAPHA, J. Mull.

S. actinota, *Wilson*, is *Sarcographa subtriosa*, *J. Mull.*, Bot. Bull. 7 p. 33.

TRIBE XVIII.—STRIGULEÆ, *J. Mull.*, Pyr. Cub. p. 378.

STRIGULA, Fries.

S. elegans, v. **eumorpha**, *J. Mull.*, L.B. 919. Plagulae $1\frac{1}{2}-2$ mm. in diameter, formed of 3-5 rays connate in the centre, discrete beneath, each composed of branchlets by 2-3-dichotomous division, the whole of the lacinae shortly linear, convex, glabrous, from florescent to whitish-green; pycnides $\frac{1}{10}$ mm. wide, nude; stylospores $.017$ mm. long, baculiform, bilocular.

Hab.: North Pine River.

S. elegans, v. **pertenuis**, *J. Mull.* (var. nov.). Lacinae subflabellately branched, here and there, in spaces, simple or only rudimentarily branched, branchlets $.04-.05$ mm. wide, vesiculose-cellulose and here and there rudimentarily provided with cilia.

Hab.: North Pine River.

TRIBE XIX.—PYRENULÆ, *J. Mull.*, Pyr. Cub. p. 381.

SUB-TRIBE I.—ASTROTHELIEÆ, *Trev.*, Syn. Gen. Try. p. 22.

PARMENTARIA, *Fée.*

P. astroidea, *Fée.* Thallus hypophlœodal, the epidermis olivaceous-pallid, very thin; apothecia emergent but closely clothed by the thin cortex, when they are impurely nigricant, 2-3-4 in little heaps, or often 5-6 connate in stars, resting on a common black base, each hemispherical prominent, 1-5 fruited with common ostiolum; nucleus somewhat flavicant or pallid; paraphyses crowded, capillary; asci linear 2-4-8-spored; spores hyaline or olivaceous, at length brown, $\cdot 024\text{--}035 \times \cdot 011\text{--}06$ mm., murali-locular in 8×4 ranks. Syn.—*Heufleria pentagastica*, *J. Mull.*, *Verrucaria astroidea*, *Fée.*, *Pyrenastrum Americanum*, *Sp.*

Hab.: Main Range, near Toowoomba.

SUB-TRIBE II.—PLEUROTHELIEÆ, *J. Mull.*, Pyr. Cub. p. 387.

PARATHELIUM, *Nyl.*, Bot. Leit. 1862 p. 279.

P. decumbens, *J. Mull.* (sp. nov.). Thallus whitish, at first smoothish, then only a mere vestige, finally evanescent; apothecia black, long-necked, decumbent-adnate and rather innate, at first thalline-subvelate, usually the emergent part nude; perithecium with thin neck, globose, $\cdot 7$ mm., wanting beneath; spores 8, oblong-ellipsoid, 4-locular, $\cdot 02 \times \cdot 01$ mm.

Hab.: On bark, Toowoomba.

SUB-TRIBE III.—VERRUCARIEÆ, *J. Mull.*, Pyr. Cub. p. 398.

PORINA, *J. Mull.*, L.B. 644.

P. phæophthalma, *Shirley*, Lich. Fl. Qd., June, 1889; s. *P. brisbanensis*, *J. Mull.*, Lich. Brisb. 1891.

CLATHROPORINA, *J. Mull.*, L.B. 541.

C. olivacea, *J. Mull.*, s. *Porina enteroxantha* C.K. Lich. Fl. Queens. p. 171.

C. desquamans f. solediosa, *J. Mull.* (var. nov.). Soredia rather numerous, patelliform, $\cdot 5\text{--}7$ mm., evenly truncate, margin acute, the disk covered with a very pale golden dust.

Hab.: On bark, Brisbane and Toowoomba.

ARTHOPYRENIA, *J. Mull.*, L.B. 612.

A. Cinchonæ, *J. Mull.* Thallus effuse, very thin, whitish, flavidulous or alboglaucous, evanescent; apothecia convex-conoid, rugulose, papillate, ostiolate-impressed; the nucleus from albicant when dry to nigro-fuscescent when moist; perithecium dimidiate, base spreading; spores $\cdot 01\text{--}025 \times \cdot 006\text{--}7$ mm., 2-locular.

Hab.: Main Range, near Toowoomba.

POLYBLASTIA, *J. Mull.*, L.B. 490.

P. nudata, *J. Mull.* (sp. nov.). Thallus white-spotted, very thin, rather smooth, shining; apothecia $\cdot 5$ mm., almost equal in every

diameter, hemispherical-convex, at first whitish clouded, usually at length nude and rather polished, almost wholly emersed; perithecium incomplete beneath; asci broad; spores 8, broadly or narrowly ellipsoid, $\cdot 03\text{--}05 \times \cdot 02$ mm., 8-locular, with 4 transverse locelli in each loculus.

Hab.: On bark, near Brisbane.

PYRENULA, Fée Ess. Supp. p. 76.

P. bicuspidata, *J. Mull.* (sp. nov.). Thallus nigrescent-olivaceous, smooth; apothecia $\cdot 7$ mm., black, twice as broad as high, semi-emergent, but thalline velate, and finally blackish, thickly scattered, regular; perithecium flat below, very thin at the base, but complete, the sides curving to the base; spores 8, $\cdot 04\text{--}07 \times \cdot 01\text{--}02$ mm., 4-6 locular, at both ends cuspidate-acuminate.

Hab.: On bark, near Brisbane.

P. marginata, *Trev.* Thallus as in *P. convexa*, *J. Mull.*, greenish-yellow, membranaceous, desquamescens, subverruculose, margin shiiving, undulate broad, fuscous, limitate; apothecia globose, depressed, as if alato-marginate; perithecium sub-globose, complete, everywhere equally thick; ostiolum large, solitary, papilliform, brownish-red; spores fuscous, 4-locular, ellipsoid, $\cdot 027\text{--}04 \times \cdot 01\text{--}018$ mm.

Hab.: Rosewood Scrub.

P. Kunthii, *Fée.* Differs from *P. marginata*, *Trev.*, in the slightly smaller apothecia, and the narrower spores, $\cdot 007\text{--}011$ wide.

Hab.: North Pine River.

P. pinguis, *Fée.* Thallus from pallid olivaceous, usually albicant, smooth, very thin; apothecia innate, revealed by the black punctiform ostiolum, the vertex widely denudate, but only slightly emergent; perithecium globose, complete, black, everywhere thickish, $\cdot 6$ mm. wide; spores in linear asci, 8, 1-seriate, brown, 4-locular, $\cdot 035\text{--}04 \times \cdot 015\text{--}8$ mm., oblong-ellipsoid. *Verrucaria punctella*, *Nyl.*

Hab.: Main Range, near Toowoomba.

P. nitida, *Ach.* Thallus cartilagineo-membranaceous, levigate, from pallid fusco-cinereous; apothecia in glabrous-closed verrucæ, which are prominent, nude, rugulose, perforate with depressed ostiola; spores 4-locular, $\cdot 018\text{--}032 \times \cdot 009\text{--}015$ mm.

Hab.: Main Range, near Toowoomba.

ANTHRACOTHECIUM, Mass. Esam. Comp. p. 49.

A. confine, *J. Mull.* Thallus white or whitish, opaque, thin, bordered by an obscure line; apothecia mastoid, rather prominent, clothed by the thallus; ostiolum punctiform, black, at length denudate; perithecium thin, entire, black; spores 8, fuscous, ellipsoid, murali-locular in 8×4 rows, $\cdot 011\text{--}02 \times \cdot 007\text{--}011$ mm.

Hab.: Main Range, near Toowoomba.

A. Doleschalii, *Mass.* Thallus cinereous, as a thin frosting; apothecia large, $1\cdot 5$ m.m., ovate, black, cinereo-suffused, flattened, little emergent, fixed singly in areolate plates of bark; ostiola large, black, at length delapsd; spores $\cdot 02\text{--}028 \times \cdot 009\text{--}012$ mm.

Hab.: Main Range, near Toowoomba.

Order FUNGI.

AGARICUS, Linn.

A. (*Lepiota*) membranaceus, *Cke. and Mass.*, Grev. xxi. 36. Pileus thin, membranaceous, pale cream colour, convex, then expanded, umbonate, a little darker at the disc (1 to 2 cm.). Stem slender, slightly bulbous at the base, hollow; ring distant, small, rather fugacious. Gills free, ventricose, scarcely crowded. Spores very minute, $3 \times 2 \mu$.—*Dr. M. C. Cooke, l.c.*

Hab.: On wood, Brisbane River, *Field Naturalists*.

Noticed in Botany Bulletin V., but wanting description.

A. (*Collybia*) muscipula, *Cke. and Mass.* (n. sp.).

Hab.: A solitary specimen received from Dr. Joseph Bancroft. The description has not yet come to hand; but Dr. Cooke, in letter, remarks that this new species is very similar to *Ag. radicans*, Rehb. It will be seen by referring to the 3rd Supplement to Syn. Queens. Fl., p. 114, that this latter species was met with a few years ago near Brisbane.

A. (*Collybia*) nummularis, *Fries.*, Cooke's Austr. Fung. 20. Pileus rather fleshy, almost plane, obsoletely depressed around the umbo, even, pallid; stem stuffed, then hollow, smooth, pallid, incrassated above; gills free, rather distant, white.—*Cooke, l.c.*

Hab.: Gladfield, on wood, *C. J. Gwyther*; also in Victoria.

A. (*Collybia*) dryophilus, *Bull.*, Cooke's Austr. Fung. 20. Pileus somewhat fleshy, nearly plane, obtuse, rather depressed, even, smooth, turning pale (1-2 in. diameter); stem fistulose, smooth, reddish-brown or yellowish (2 to 3 in. high, $\frac{1}{4}$ in. thick); gills sinuate, adnexed, at length with a decurrent tooth, nearly free, crowded, narrow, white or pallid; spores $6 \times 4 \mu$. *Cooke, l.c.* (but no *habitat* given).

Hab.: On the earth, Gladfield, *C. J. Gwyther*.

A. (*Mycena*) epipterygius, *Fries.* Cooke Illust. t. 208 a. Pileus membranaceous, campanulate, then expanded, rather obtuse, striate, cuticle viscid, separable; stem elongated, tough, rooting, smooth, viscid, yellowish; gills adnate, with a decurrent tooth, variable in colour.—*Cooke, l.c.*

Hab.: Gladfield, *C. J. Gwyther*.

Found amongst moss and leaves in Europe.

A. (*Pleurotus*) cyphellæformis, *Berk.*, Mag. Zool. and Bot. i. t. 15 f. 3; *Cooke*, Ill. t. 244 b.; *Sacc.*, Syll. v. 379. (From *cyphellæformis*—shaped like the hollows of the ears, *cyphellai*.) Pileus cup-shaped, then dependent; upper stratum gelatinous, cinereous, very minutely strigose, especially at the base; margin paler, sprinkled with a few meal-like scales; gills pure white, rather distant, narrow, linear. A weak, gregarious species about 4 mm. high.

Hab.: On moss, Gladfield, *C. J. Gwyther*.

Found in Europe on the dead stems of herbaceous plants.

MARASMIUS, Fries.

M. pilopus, *Kalch.*, Grev. viii. t. 143, f. 13; *Sacc.* Syll. v. 2014; *Cke.*, Austr. Fungi 83. Pileus between coriaceous and membranaceous, almost diaphanous, convex, obtuse, or with the centre depressed

(scarcely 1 in. broad), wholly radiately striate, gilvous, becoming pale; stem stuffed, then hollow (1 to 2 in. long, 1 line and more thick), somewhat bulbous at the base, invested wholly with a powdery ochraceous brown tomentum; gills adnate, very broad behind, narrower towards the margin, distant, branched, edge entire, red flesh colour when dry; spores oval ($2\frac{1}{2} \times 1\frac{1}{2} \mu$).—*Cooke, l.c.*

Hab.: Near Warwick, *C. J. Gwyther*.

First found on wood in N.S.W.

M. putredinis, *Berk.*, Cooke in Austr. Fung. 86. Pileus plane, thin, smooth, reddish-yellow or grey ($1\frac{1}{2}$ – $2\frac{1}{2}$ c.m. diam.); stem of the same colour (18 mm. long, 1 mm. thick), solid, equal, smooth; gills narrow, adnate, white, then turning yellowish.—*Cooke, l.c.*

Hab.: Gladfield, on wood, *C. J. Gwyther*; also found in Victoria.

M. badius, *Berk. and Curtis*, Cuban Fung. in Journ. Linn. Soc. x 294. Pileus reddish when fresh, convex, striate; glabrous, the margin incurved, stem primose glabrescent, gills ventricose, distant, smooth, adnate, thick rounded at the back, interstices smooth.

Hab.: On wood, Gladfield, *C. J. Gwyther*.

First found on bark amongst moss at the Island of Cuba.

M. rhyssophyllus, *Mont.* in *Berk. and Curtis*, Cuban Fung. Journ. Linn. Soc. x 294. Pileus fibrous, glabrous pale yellow, stem same colour, glabrous, with a strigose base, gills distant, interstices trabeculate, yellow.

Hab.: Gladfield, on wood, *C. J. Gwyther*.

First found at Guiana.

ARRHENIA, Fries.

Membranaceous tender fungi. Hymenium inferior, lamellæ consisting of a few slender slightly raised veins in simple straight striæ. Spores pale, minute, fairly persistent, various in shape. Striæ not decurrent.—*Sacc.*, Syll. v. 498.

A. (Apus) cupularis, *Fries.*, *Sacc.*, Syll. v. 499. (*Cantharellus cupularis*, *Fries.*) Resupinate, soft, orbicular, exterior smooth villose, grey with simple centrifugal folds.—*Sacc.*, Syll. l.c.

Hab.: On a young pinnate leaf received from E. Cowley, Kamerunga.

This species is met with on rotten wood in Europe.

POLYPORUS, Fries.

(OVINI.)

P. Mylittæ, *Cke and Mass.*, Grev. xxi. 37. Pileus fleshy, tough, elastic, pulvinate, single or two or three together, and then deformed, convex, minutely velvety, white (10 cm. diam.) Stem short (2 cm. long), deformed like the pileus, solid, flesh white. Tubes rather long (7 mm.). Pores white, adnate ($\frac{1}{2}$ mm.), somewhat angular, edge acute, smaller towards the margin. Spores elliptical, with an oblique basal apiculus, smooth, $8 \times 4 \mu$. The ultimate development of the *Sclerotium*—*Mylittæ australis*.

Hab.: The *Sclerotium* has often been met with in Queensland, but the fully developed plant has not as yet been observed. *P. (Ovini) tumulosus*, *Cke.*, found by Dr. J. Bancroft, near Burpengary, is a closely allied plant, having similar habit.

(PETALOIDES.)

P. grammcephalus, *Berk.*; **var. minor**, *Cooke*. (Description of this variety not to hand.)

Hab.: On wood, Eumundi, *Field Naturalists*.

P. infernalis, *Berk.*, *Hook. Journ.* 1843; *Sacc. Syll. Fung.* vi. 83; *Cooke's Austr. Fung.* 116. Pileus flabelliform, entire or rather lobed, depressed behind, thin, acute, at length corky, coriaceous, quite smooth, even, striately rugulose except at the base, blackish liver coloured (8-9 c.m. broad), stem short, lateral, black, thickened upwards, punctate, pulverulent ($1-2\frac{1}{2}$ c.m. long, 1 c.m. thick), hymenium brownish; pores minute, round, very short; margin sterile.—*Cooke, l.c.*

Hab.: Gladfield, *C. J. Gwyther*.

This species was first met with in Brazil; since it has been found in Victoria, now in Queensland.

P. phlebophorus, *Berk.*, *Fl. N. Zeal.*; *Sacc. Syll. Fung.* vi. 91. Small, white, pileus flabellate, about 25 mm. broad and long, stem short, glabrous, veined, undulate, cuticle gelatinous; pores minute, subirregular, with thin toothed dissepiments.

Hab.: On stems of *Eucalyptus hemiphloia*, at Port Curtis, *Hon. A. Norton*.

Only before known from New Zealand.

FOMES, Fries.

F. cryptarum, *Bull.*, as *Boletus cryptarum*, *Polyporus undata*, *Pers.*; *Sacc. Syll. Fung.* vi. 205. Pileus suberoso-stupose, effuso-reflexed, appressed-silky, colour reddish-ferruginous, but variable both in colour and form; pores minute, pale, rounded.

Hab.: On log in Bowen Park bush-house.

Found on rotten pinewood in Europe.

CYPHELLA, Fries.

C. longipes, *Oke. and Mass.*, *Grev.* xxi. 38. Tobacco-pipe Fungus, Gregarious, membranaceous, white. Pileus narrowly infundibuliform, 2 mm. broad, 4 mm. long, attenuated downwards into a long thin curved stem, 5 mm. to 1 cm. long, wholly smooth, thickest above, as it passes imperceptibly into the pileus. Spores pip-shaped, $7 \times 6 \mu$.—*C. and M. l.c.*

Hab.: Brisbane River scrubs, on the rough bark of living trees, *Field Naturalists*.

The description wanting in *Bot. Bulletin V*.

CYATHUS, Hall.

C. Baileyi, *Massee.*, *Grev.* xxi. 3. Peridium obconic or campanulate, at maturity widely open above, and with the margin slightly revolute, thin, and cartilaginous, minutely tomentose externally, cinnamon-colour, glabrous and greyish-cinnamon inside, $\frac{2}{3}$ to 1 cm. high; sporangiola 8 to 12 in number, biconvex, very smooth, grey, then black and shining, about 2 to 2.5 mm. diameter; spores subglobose, colourless, 18 to 20×15 to 16μ . More or less gregarious. Basidia bisporeous, clavate, apex truncate, sterigmata elongated, slender.—*Mass. l.c.*

Hab.: On dung, Brisbane.

PHYSARUM, Pers.

P. didermoides, *Ach.*, Rost. Mon. Sacc. Syll. Fung. vii. 338; *Spumaria didermoides*, Fries; *Didymium congestum*, B. and Br. Forming crowded patches very much resembling those of *Diachæa elegans*; Peridia obovate-oblong, cinereous, with a white mealy coat; stems hyaline, membranaceous, generally distinct, though crowded, springing from a thin subjacent membrane. Spores black, variegated with the white coarse, irregular, here and there lacunose flocci. The globose spores appear at first sight to be granulated, but on closer inspection the granules are found to arise from the disintegrated outer peridium.—*Berk.*, in Cooke's Handbook of Brit. Fung.

Hab.: Gladfield, on scales of onions and bracts of maize, *C. J. Gwyther*.

GEASTER, Mich.

G. Archeri, *Berk.*, Fl. Tasm. ii. 264, t. 88, f. 9; *Sacc.*, Syll. 1590, Cooke's Austr. Fungi 231. Outer peridium cut to the middle into 6 to 7 lobes; laciniae flaccid, acuminate, revolute; inner peridium globose, purplish umber; peristome elongated, conical, sulcate-plicate, indistinctly marginate; capillitium umber; spores globose, rufous-olive, even, $5\ \mu$ diam.—*Cke.*, l.c.

Hab.: Gladfield, *C. J. Gwyther*.

First met with in Tasmania.

LYCOPERDON, Tourn.

L. Gunnii, *Berk.*, Fl. Tasm. ii., 265; *Sacc.*, Syll. vii. 341; *Cke.* Austr. Fungi. 239. Sessile, sub-globose (1 to 2 in. diam.), with very minute stellate warts. Columella short; spores bright olive, globose with long pedicels ($\frac{1}{8000}$ in.).—*Cooke* l.c.

Hab.: Near Warwick, *C. J. Gwyther*.

Also in the pastures of Tasmania and Victoria.

SPHACELOTHECA, De Bary.

(From *sphacelos*, rottenness; and *theca*, capsule.)

Part of the mycelium converted into a central fleshy columella, surrounded by the mass of spores; spores solitary, sporidiola acrogenous, on a septulate promycelium.—Cooke's Austr. Fung.

S. hydropiperis, *Schum.*; *Sacc.* Syll. Fung. vii. 499, and Cooke's Austr. Fung. 327; *Ustilago Hydropiperis*, Schret.; *Uredo Hydropiperis*, *Schum.*; *U. Bistortarum* var. *ustilaginea*, *Bl.*; *Cæoma Bistortarum*, *Link.*; *Ustilago Candollei*, *Tul.* Horn-shaped, evolved in the more or less swollen ovaries, replete with dark violet powder, opening at the apex and emitting the spores; spores solitary, globose, or ellipsoid or rounded, angular, $9-20 \times 8-12\ \mu$, or $8-17\ \mu$; epispore even, dark violet, delicately granulose.—*Cooke*, l.c.

Hab.: Gladfield, in the ovaries of a *Polygonum*, *C. J. Gwyther*.

The same fungus infests the ovaries of many species of *Polygonums* in Europe and America.

PUCCINIA, Pers.

P. carissæ, *Cke. and Mass.* (n. sp.).

Hab.: Gladfield, on leaves of *Carissa ovata*, *C. J. Gwyther*.

The author's description not yet to hand.

URED0, Pers.

U. pallidula, *Cke. and Mass.* (n. sp.).

Hab.: Gladfield, on the pods and leaves of a *Cassia*, *C. J. Gwyther*.
The author's description of this new species not yet to hand.

ASCOBOLUS, Pers.

A. Phillipsii, *Berk.*, Cooke's Austr. Fung. 268. Cups concave, with an elevated margin (3-5 mm.), externally wax-colour, then tawny, smooth; disc cinereous; asci clavate; sporidia elliptical, smooth, without striæ or reticulations, becoming brown (21-28 x 11-13 μ); paraphyses clavate.

Hab.: Gladfield, on dung, *C. J. Gwyther*.

CALONECTRIA, De Not.

(Literally, beautiful Nectria.)

Perithecia free or cæspitose, superficially-erumpent, somewhat soft, bright-coloured, globose, papillate afterwards bissoïd or pilose; sporidia oblong or fusoid, 2 or more septate, hyaline.

C. otagensis, (*Lind.*), *Sacc.*; *Nectria otagensis*, *Lind.*; *Sacc. Syll. Fung. ii. Add.* 68. Perithecia densely cæspitose, pale-yellow; sporidia distichous, fusoid, obtuse at both ends, 1 to 3 septate hyaline.

Hab.: Gladfield, on twigs of the native Pomegranate, *Capparis Mitchellii*, *C. J. Gwyther*.

This fungus was first met with at Otago, New Zealand, on decayed branches of *Sophora tetraptera*.

XYLARIA, Schr.

X. scopiformis, (*Kunze*) *Mont.* *Cke.*; Austr. Fungi 285; *Sacc.*, *Syll. i.* 340. (*Hypoxylon scopiforme*, *Kunze.*) Simple, slender, often fasciculate, 2 to 3 cm. long, clubs (1 to 1½ cm. long, 1 mm. thick) cylindrical, acute at the apex, black; stem about as long as the club, smooth, often compressed; perithecia few, large, inflated the clubs so as to appear nodulose. Sporidia unequal sided, dark brown (10 to 12 x 3½ μ).—*Cke. l.c.*

Hab.: On decaying fruit of *Flindersia australis* (Crow's Ash), Bunya Mountains, *H. Tryon*.

A tall variety is met with at Ceylon. The species has been also collected in Guiana, Surinam, Brazil, and Cuba.

X. rhizophila, *Cke. and Mass.* (n. sp.).

Hab.: Gladfield, on roots of herbaceous plants, *C. J. Gwyther*.

The description of this new *Xylaria* is not yet to hand.

USTULINA, Tul.

Stroma superficial, somewhat effused, rather thick, determinate; hymenium bearing conidia, pulverulent, whitish, becoming cinereous, then rigid, carbonaceous, black, naked, often becoming hollow; perithecia immersed, large horny; asci pedicellate; sporidia ovoid-fusiform, continuous, sooty-brown.—*Cke. Austr. Fungi* 290.

U. vulgaris, *Tul. Cke.*; Austr. Fungi 290, *Sacc.*; *Syll.* 1328. Stroma superficial, rather effused, repand, pulvinate, large, thick, undulated, at length quite black, carbonaceous, fragile, hollow within; perithecia

large, ovate, densely crowded, peripheral, with a prominent ostiolum ; asci cylindrical, 250×8 to 10μ ; sporidia fusiform, unequal sided, curved, turning black, 32 to 40×8 to 13μ .—*Cke. l.c.*

Hab. : On logs, Eumundi, *Field Naturalist*.

Also found on the stems of *Fagus* (Beech), *Tilia* (Lime-tree), and *Carpinus* (Hornbeam), in Europe, Cuba, Guyana, &c., North America and Ceylon.

HYPOXYLON, Bull.

H. atrosphaericum, *Cke. and Mass.* (n. sp.) Description not to hand.

Hab. : On logs, Eumundi, *Field Naturalists*.

ROSELLINIA, Not.

R. seriata, *Cke. and Mass.* (n. sp.) Description not to hand.

Hab. : On rotten wood, Gladfield, *C. J. Gwyther*.

UROMYCES, Link.

U. puccinioides, *Berk. and Muell.*, Linn. Journ. xiii. 173 ; Sacc. Syll. 2100. *Æcidia* aggregate, on brown orbicular spots, opposite ; pseudoperidia scattered, not circinate, margin short ; *æcidiospores* orange (*Æcidium goodeniacearum*, Berk.) ; sori bullate ; teleutospores brown, apiculate, sometimes with the apex, oblique or dentate, pedicellate.—Cooke's Handbook of Austr. Fung. 332.

Hab. : On *Scævola* and *Goodenia* at St. George, *Jos. Wedd.*

HAMASPORA, Korn.

Teleutospores multiseptate, sometimes uniseptate, free ; pedicels coalesced in a prominent cylindrical gelatinous body.—Cooke's Austr. Fungi, 340.

H. longissima, (*Korn. Phragmidium longissimum*, Thum.) Sacc. Syll. vii. 2630 ; *Cke. Austr. Fungi*, 340. Uredosporiferous sori on the lower surface, scattered, or gregarious, or confluent, clear-orange ; uredospores globose, or ovoid, even, reticulate (16μ diam), pale yellow, epispore thick ; teleutospore sori gregarious, pale ochre, tendril-like ; telentospores very long, linear-lanceolate, 4 septate (or more), yellowish, apex acute, hyaline, 200 to 240×13 to 14μ , pedicels very long, hyaline.—*Cke. l.c.*

Hab. : On *Rubus* leaves at Eudlo. Description wanting in Botany Bulletin, No. V.

First found on the living leaves of *Rubus rigidus* at the Cape of Good Hope.

ÆCIDIUM, Pers.

Æ. Goodeniacearum, *Berk.*, Linn. Journ. xiii. 173. (See *Uromyces puccinioides*, B.) Spots orbicular, brown beneath, or obsolete ; pseudoperidia scattered (or circinate), with an abbreviated margin ; spores orange.—Cooke's Handbook of Austr. Fung. 342.

Hab. : On *Scævola* and *Goodenia* at St. George, *Jos. Wedd.*

Æ. compositarum, *Mart.* Cooke's Austr. Fungi 340 ; Sacc. Syll. vii. 2815. Spots purplish, subrotund, and confluent ; pseudoperidia crowded on the spots, in orbicular patches, or circinating ;

margin white, revolute, laciniate; æidiospores oval or subglobose, 15 to 20 μ diam. (Numerous varieties which have received names from the plants they infest.)—*Cooke l.c.*

Hab.: Gladfield, on compositæ, *C. J. Gwyther.*

Æ. deeringiæ, *Cke. and Mass.* (n. sp.) (Description not to hand.)

Hab.: On leaves of *Deeringia celosioides*, Gladfield, *C. J. Gwyther.*

ASTERINA, Lev.

A. hoveaefolia, *Cke. and Mass.* (n. sp.).

Hab.: On leaves of *Hovea longifolia* at Gladfield, *C. J. Gwyther.*

The author's description of this new species is not yet to hand.

PHYLLOSTICTA, Pers.

P. fragaricola, *Desm.* Cooke Austr. Fungi. 346; Sacc. Syll. iii. 40 No. 219. The strawberry-leaf blight. Spots straggling, becoming bleached, with a red margin; perithecia punctiform, remotely scattered; sporules oblong-ovoid, 5 x $1\frac{1}{2}$ to 2 μ , straight, without nuclei, hyaline.—*Cooke l.c.*

Hab.: On strawberry leaves, Brisbane. Found also on strawberry plants in many parts of Europe.

PHOMA, Fries.

P. folliculorum (*Lév.*) Sacc., *Sphæropsis folliculorum*, *Lév.* Erumpent; perithecia gregarious, immersed, glabrous, black, conical, depressed, and papillate about the ostiolum, surrounded by whitish spots; sporules ovoid, continuous, hyaline.

Hab.: Near Townsville, on follicles of a *Marsdenia*, *E. J. Banfield*; on the same follicles Dr. Cooke found a new species of *Diplodia*, *D. Marsdeniæ*.

When first met with it was parasitic on follicles of *Asclepias curassavica* in the herbarium of Joseph Decaisne, for a long time Director of the Paris Jardin des Plantes.

DIPLODIA, Fries.

D. Marsdeniæ, *Cke. and Mass.* Grev. xxi. 75. Gregarious, perithecia, obturbinate, black, erumpent above, with a short ostiolum; sporides elliptical, for a long time continuous, and hyaline, with a granular plasma, at length uniseptate, not constricted, dark brown, 22 x 10 μ , on basidia of the same length.—*C. and M. l.c.*

Hab.: In company with *Phoma folliculorum*, *Lev.*, on follicles of a *Marsdenia*, near Townsville, *E. J. Banfield.*

VERMICULARIA, Fries.

(So named from the supposed resemblance of the spores to little worms.)

Perithecium thin, mouthless, generally bristly; spores vermiculate.—*Berk., Outl.*

Hab.: Gladfield, on some leaflets of *Flindersia*.

Dr. Cooke observed what appeared a species of the above genus, but finding no spores nothing further could be determined.

DARLUCA, Cast.

(After M. Darluc.)

Perithecia delicate; spores containing a row of sporidiola, oozing out and forming a tendril.—*Berk., Outl.*; Cooke's Handb. of Brit. Fung.

D. filum, Cast. "Parasitic Darluca." *Sphæria Filum*, Biv.; *Darluca vagans*, Cast.; *Diplodia uredinicola*, Desm. Gregarious, very minute; perithecia globose, black, shining, pierced; spores hyaline, oblong, straight, containing four minute sporidioles.—*Cooke, l.c.*

Hab.: Gladfield, on leaves of *Sorghum* and *Muchlenbeckia* infested with *Uredo sorghi* and *U. rumicis*, C. J. Gwyther.

MELASMA, Lev.

M. tecomatis, Cke. and Mass. (n. sp.).

Hab.: On leaves of *Tecoma jasminoides*, at Gladfield, C. J. Gwyther.

Author's description of this new species not yet to hand.

GLEOSPORIUM, Mont.

G. Alphonitiae, Cke. and Mass. (n. sp.).

Hab.: Gladfield, on leaves of *Alphonitonia excelsa*, C. J. Gwyther.

Author's description of this new species not yet to hand.

PENICILLIUM, Link.

Sterile hyphæ creeping, septate; fertile threads at the apex unequally verticillately branched or penicillate; conidia spheroid, produced in chains, hyaline, or brightly coloured.—*Cooke, Austr. Fungi*, 369.

P. glaucum, Link, Cooke, Austr. Fungi 369; Sacc. Syll. iv. 78. *Aspergillus simplex*, Pers., *Botrytis glauca*, Spreng., *Mucor crustaceus*, Linn. (?), *Penicillium crustaceum*, Fries, *P. expansum*, Link. Mycelium effused, creeping, white, sterile hyphæ creeping, intricate, septate; fertile hyphæ erect, branched in a penicillate manner at the apex, branches solitary or in pairs, erect, once or twice forked at the apex; branchlets erect; conidia seated at the apices in chains, spherical or broadly elliptic, smooth, verdigris-green, hyaline, $4\ \mu$ diam.—*Cooke l.c.*

Hab.: Found on fruit, leaves, stems, &c., almost everywhere. The mycelioid condition of this species constitutes what is known as "the vinegar plant." A short time ago it was observed in brine used for meat-pickle at a Brisbane establishment.

MICROCOCCLUS, Hall.

Cocci globose or ovoid, entire, single or crowded, or accumulated in colonies, or zooglæa, a colony embedded in a gelatinous substance. These gelatinous masses are also known by the name of *Palmella*. Sacc. Syll. viii. 1076.

M. crepusculum, Ehrenb., Sacc. Syll. viii. 1082, No. 1284. Invested by a thick tegmen, viscid mucous, liquescent, of a whitish or becoming a pale-brown colour; cocci globose, $2\ \mu$ diam., single or congregated in colonies. Sacc. Syll. l. c.

Hab.: Taken from a bottle of Brisbane hop beer. This species is frequently found in putrescent liquids.

